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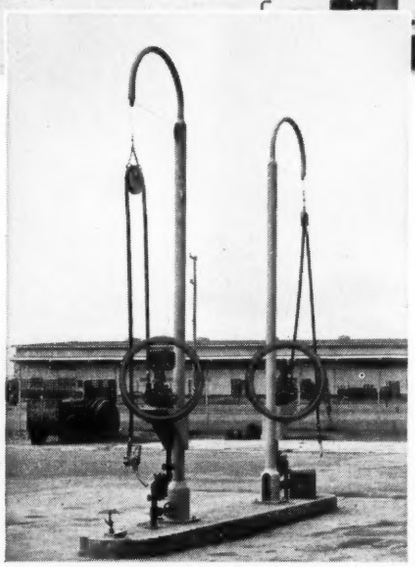
fueloil & oil heat

YARD FUELING
OF FLEETS AND EQUIPMENT



Above views show the installation of two 2" Brodie Meters with 360° swivel adaptor and Brodimatic Counter.

— REQUIRES *BRODIE METERS*
EQUIPPED WITH BRODIMATIC COUNTERS

Many hours of time consuming delays—as well as many unaccounted for gallonage losses can be saved by all types of commercial fleets—by installing *Brodie* Meterized Gas islands. Equipped with the versatile Brodie 360° swivel adaptor, Brodimatic direct-reading counters installed in conjunction with Brodie Meters, permit accurately controlled fueling of vehicles and equipment from either or both sides of the island. Continuous records of gallonage withdrawals can be entered, manually, on the proper forms by the driver or operator. To keep trucks "on-the-go", investigate this economical system of gallonage control today. Wire or write for full details—refer to "YARD FUELING".

BRODIE METERS

PETROLEUM METERING EXCLUSIVELY

SINCE 1927

RALPH N. BRODIE CO., INC.
953-61ST STREET, OAKLAND 8, CALIF.

DIVISION OFFICES: *Chrysler Bldg., New York City 59 Van Buren, Chicago 5 • 302 South Pearl St., Dallas 1, Texas • 221-9th Ave., Seattle 9, Wash. 2101 S. San Pedro, Los Angeles 11, California*

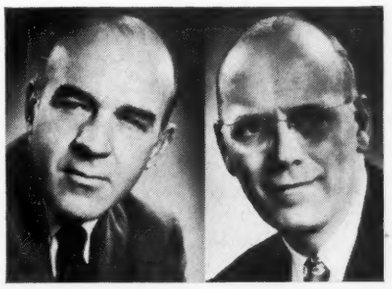
VOL. 7, NO. 8

fueloil & oil heat

DECEMBER 1948

Names in the News

Henry M. Brundage has been appointed manager, automatic heating division, and *Harold B. Donley* has been named manager of marketing, Air Conditioning Department, General Electric Co., Bloomfield, N. J. Mr. Brundage's



Brundage **Donley**

background includes early development work with Standard Oil Co. of N. J. on residential oilheating. Later he headed his own firm, distributors of appliances and heating equipment, and during World War II held several positions with War Production Board and Smaller War Plants Corp. In 1942, he was drafted to organize and administer emergency oil regulations for fueloil allocations in the eastern coastal states.

Mr. Donley, recently vice president and general manager, Hunter Fan & Ventilating Co., Memphis, assumed his new duties on November 1. Among activities falling under his jurisdiction are product and market sales, field sales organization, market research, advertising and sales promotion, product planning and commercial engineering.

Dr. Lester M. Goldsmith, chief engineer, Atlantic Refining Co., Philadelphia 1, Pa., on October 14 was awarded the President's Certificate of Merit. In recognition of Dr. Goldsmith's services from October 1942 to December 1944, the certificate cited his "outstanding services" as a member of the Transportation Div., National Defense Research Committee, Office of Scientific Research and Development. He had been cited in April 1947 also, when presented the

CONTENTS

SUBJECT	PAGE	AUTHOR
Oilheating Windfalls	43	ROBERT GRAY
Oilburner Pulsations	45	C. H. BURKHARDT
Automatic Heating Supplies	49	HENRY D. CRANE
Low Pressure Burners II	51	FRED FEIGENBAUM and JOHN E. DIGNAM
Engineers Without Degree	55	
Oddities In Servicing—III	57	JOHN W. SCHULZ
Servicing a Thermostat	70	

NEWS

Marshall Heads API Marketing	48
Reynolds Succeeds Champlin	56
Gas Man Asks Heating Oil Be Withheld	62
Farm Survey Favors Oilheating	62
Heating Show Forecasts Wide Use	64
Low Cost Gas-Making Process	66
Long Range Oil Outlook Good	68
Estimate 800,000 Homes In '48	68
Small Refiners Grow Faster	68
Slight Drop In Heating Gas	68
Index to 1948 Articles	113

DEPARTMENTS

5	Names in the News
8	Editorial Leaks
10	Oilheating Trends
12	Fueloil Supplies
60	Book Shelf
70	Service Short Short
72	Readers' Problems
80	Industry Groups
86	Manufacturers' Activities
94	New Products
104	Everyday Snags
111	Degree Day Table

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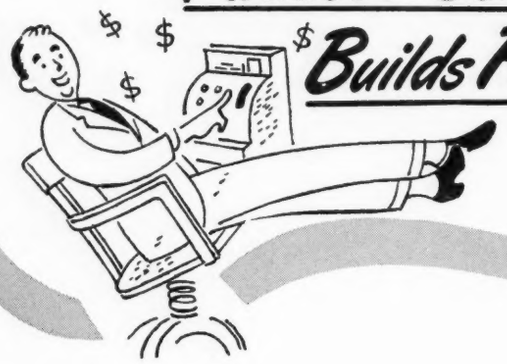
EXCLUSIVE H.C.Little CATALYTIC HEAT CONTROL

Reduces Service... Builds Profits...



You reduce service troubles to an absolute minimum and at the same time build up your NET profit to the maximum, every time you install an H. C. Little oil burner or furnace with the new, exclusive H. C. Little catalytic heat control.

The ability of oil heating equipment to burn catalytic oil SUCCESSFULLY is no longer just a convenience — *it is an absolute necessity* for economical, trouble-free operation.

EXCLUSIVE *H. C. LITTLE* "CATALYTIC HEAT CONTROL" NOW STANDARD EQUIPMENT ON ALL *H. C. LITTLE* UNITS

As a result, H. C. Little burners and furnaces operate on low cost catalytic furnace oil with:

1. IMPROVED PERFORMANCE
2. INCREASED CAPACITY
3. EFFICIENT COMBUSTION WITHOUT CARBON
4. SUBSTANTIAL FUEL SAVINGS

H. C. Little dealers can honestly tell *their* customers that all H. C. Little units are equipped to burn catalytic oil SUCCESSFULLY!

ALSO AVAILABLE FOR MODERNIZATION

H. C. Little dealers are offering the new Catalytic Heat Control for modernizing existing H. C. Little installations, making these marvelous fuel saving improvements available to *all* their H. C. Little customers.

H.C.Little Burner Company

Dept. 12, SAN RAFAEL, CALIFORNIA
Branches in 18 Principal Cities

decoration for Exceptional Civilian Service for his contribution to the installation of an oil pipeline under the English Channel preceding the Normandy invasion—the famed Operation Pluto.

Thomas J. Griffin has become eastern New York sales representative for Thatcher Furnace Co., Garwood, N. J. Mr. Griffin joined Thatcher in 1946 following three years service with the U. S. Marines. Prior to his war service he was employed by Bendix Aviation Co. His appointment as sales representative climaxes two years in the sales and engineering departments as part of Thatcher's sales training program.

Forest R. Phillips has been added to the sales force, Viking Air Conditioning Corp., Cleveland 2, Ohio. His experience in the heating industry has ranged from sales engineering and installation of steam power plant equipment to sales of domestic forced warm air heating equipment. *Tom McIntyre* has been moved into the Ohio, Pennsylvania territory for Viking and Mr. Phillips is taking over his former territory of western Indiana, southern Illinois, western Kentucky and Missouri.

R. C. Osborn, chief engineer, Eureka Williams Corp., Bloomington, Ill., since December 1947, has been promoted to vice president in charge of engineering. As such he will be in charge of the complete line, including Oil-O-Matic oil-burners, furnaces and boilers. He joined the company in September 1945, following experience as an engineer with the Hoover Co. and director of engineering, Tobe Deuschmann Corp.

J. O. Cross has been named director of industrial relations, United States Radiator Corp., Detroit 31, Mich., responsible for labor and personnel relations in the offices and plants.

Through before you knew it...

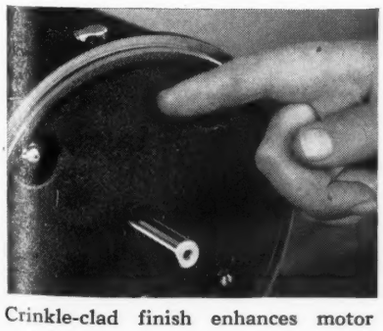
TROUBLE with wartime shoes was that leather came from the wrong part of the steer.

"Off-brand" motors were resorted to by many reputable oil burner manufacturers in the postwar days of scarcity. Thousands of these motors were "through" before customers knew it. Thousands more will follow.

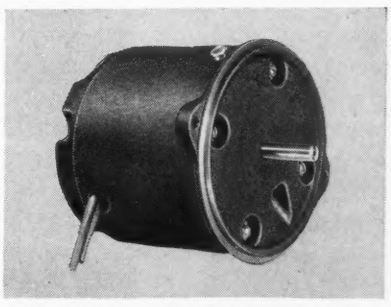
How many oil burners did you install with substitute motors?

At the first sign of trouble, replace doubtful power with proved Ohio Motors. Many of the first Ohio Motors built 20 years ago *are still in service.* Dependable performance explains why, through the years, one-third of all oil burners have been powered by Ohio.

Order Ohio replacement motors today from your oil burner manufacturer—direct from us if he cannot supply you. And specify OHIO on your next oil burner order—*for superior performance and complete customer satisfaction.* The Ohio Electric Mfg. Co., 5913 Maurice Ave., Cleveland, Ohio.



Crinkle-clad finish enhances motor and burner appearance.



Ohio Motors are built to NEMA or other specifications, as desired.

ohio MOTORS

The motor customers write about *enthusiastically.*

Editorial Leaks

Evidence is appearing that major oil marketers have come to the realization that dealer costs have risen near the breaking point. Skelly Oil, Esso and Shell all have announced reductions in wholesale prices, and others may follow before this is printed.

We prefer to believe these price reductions at the wholesale level indicate a business conscience, rather than a frantic desire to make room in bulging storage tanks. This would be a logical conclusion, since retail prices were not affected by the lower wholesale adjustments.

Dealer margins long have been falling percentage-wise. The relatively rigid cents-per-gallon margins have not been increased at the same rate that the retailers' expenses have risen during recent years, and the increase in gallonage has not been great enough to make up the difference.

Though margins in cents are not the same in all territories, or for all classes of dealers, most retailers need a better spread. We can depend on the law of supply and demand (unless repealed) to soften retail prices any time the spread becomes more than adequate.

At the same time this industry and its customers are heartened by this indication that a price readjustment has started.

◈

Salesmen are among the shortest of all raw materials, according to a study by the Associated Industries of Cleveland, an organization of more than 1,000 Cleveland manufacturers. Even firms whose products still are in demand far beyond the supply, are becoming uneasy about sales manpower. Individual companies are working at top speed to develop salesmen before present demand slackens.

No single occupation in our economy is more vital to the business welfare of the individual business and the country as a whole than selling. Factories, machinery, transportation and every other occupation down to the last file clerk depend on a continuing demand through selling for their support.

Those oilburner manufacturers and dealers who intend to stay in business should start no later than now to build their selling organizations. The hayride is over. People who know they want oil heat have bought. We need a strong corps of salesmen to help those future customers to make their decisions.

◈

Something of a problem looms on the horizon for those who advocate a shift of oilheating installations to other fuels. It seems that "cheap" oil and gas have so disturbed the coal business that it could not take over the market at present.

Present coal transportation facilities are totally inadequate to handle the estimated 40,000,000 tons of new load such a shift would impose, according to coal industry authorities. They do not say that it would be difficult, if not impossible, to produce that much additional coal on short notice.

It is believed that 50,000 new coal cars would be needed to take over the heating demand, and present coal car supply is not keeping up with present losses due to scrapping of worn-out cars.

Railroads now are handling the current coal demand only with difficulty. It seems doubtful if railroads will invest in coal cars that would be needed to haul the total heating demand.

◈

In part of this space in the September issue we entered a plea for more drama in petroleum statistics, or for figures that are more easily understood than the millions, billions and trillions we hear too often.

Now come *The Lamp,* house publication of Standard Oil Co. (N.J.), explaining what the oil industry's annual investment means. This two billion dollars a year for expansion means an investment of $670 for each domestic oilburner installed, says *The Lamp.*

In terms of other oil-consuming devices the annual investment equals $530 for each automobile; $970 for each truck; $108,000 for each diesel locomotive; or $221,000 for each additional commercial transport plane.

We have not checked the figures for accuracy, but we certainly approve the idea of understandable promotion statistics. As one who once had $670, we can comprehend that figure.

◈

This most recent issue of *The Lamp* also contains the estimate that there is enough heating oil in sight to supply all burners this winter. Since this magazine is circulated to stockholders and others outside the oil business, the statement is public.

Standard feels that the additional fueloil in industry and consumer storage, the record refinery runs and improved transportation have eliminated any serious threat of shortage. Such a public statement by a major oil company is heartening to an industry and its customers who have been bludgeoned for a year with insistent warnings of oil shortage.

There is little chance that the oil shortage boogey-man will reappear again in the near future. Both the oil and oilburner industries were caught off balance last year and demand outran the ability to supply it. With expanded facilities for present record production, and present refinery yields, there will be ample oil for all present users. At the present rate of oilburner sales, it is not likely that new users will come into the fueloil market fast enough to create a problem.

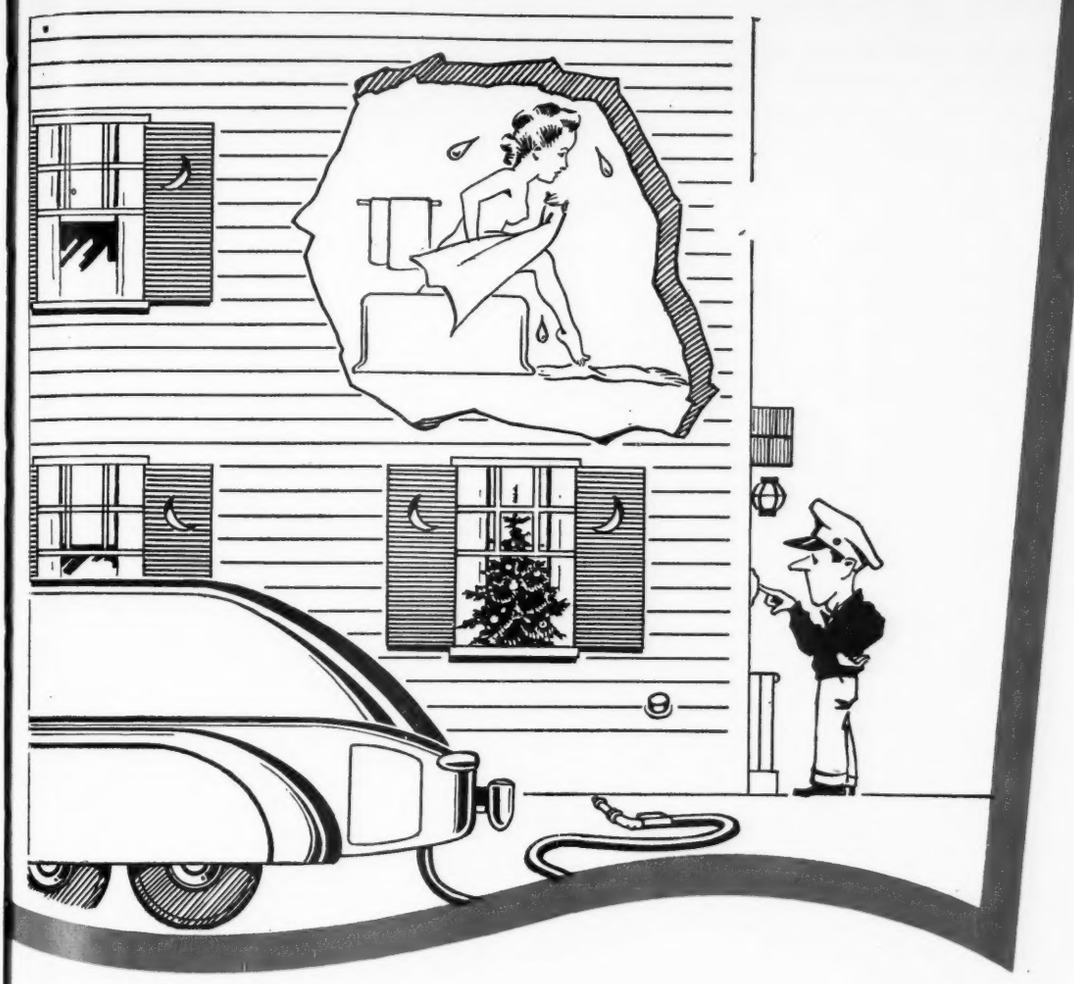
The oilburner market again is wide open. Every customer will get oil. It remains only for this industry to find and sell those future customers.

◈

Some of us have been talking too glibly about oil shale without appreciating the true nature of this secondary source of oil. An explanation before a recent meeting of the American Society of Mechanical Engineers sets us straight.

"Oil shale is a sedimentary rock," says the paper, "containing organic matter insoluble in ordinary solvents, but capable of yielding an oil on heating. Some is true shale, since its inorganic matter is argillaceous, but in many the inorganic matter is calcareous or dolomitic. These should be called maristones, limestones, dolomites or magnesian maristones."

Now we know!



A CLEAN ACCOUNT--BUT COSTLY!

Did you ever think that YOU might pay for a customer's bath? Well this one is going to cost you about half a dollar. Just figure in your own mind the things she's got to do before she lets your chauffeur in!

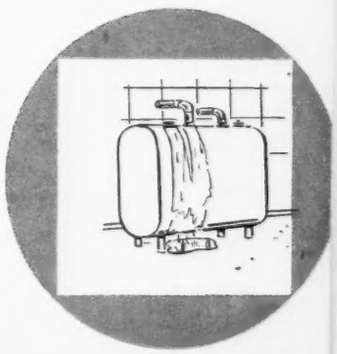
Other household affairs cause "waiting time" too—fixing the baby's formula, baking a cake, talking on the telephone to Mrs. Jones, etc. And just as long as your chauffeurs knock on doors, YOU are going to pay for the "waiting time" of both your chauffeur and your truck.

Why not join 3500 other oil dealers who have equipped their customer's tanks (over 1,000,000) with VENTALARM (R) signals? Then your chauffeur goes directly to the fill pipe, pumps oil with complete safety as long as the whistle blows. Eliminates home entry, unnecessary moves and costly "waiting time". Saves big chunks of money and increases profits.

Eliminate costly home entry and tank measurement.

Eliminate hazardous guage reading through cloudy cellar windows.

Eliminate the dangers of listening for "vent pipe click."



Eliminate messy "overfilled" tanks.

available at your supply house

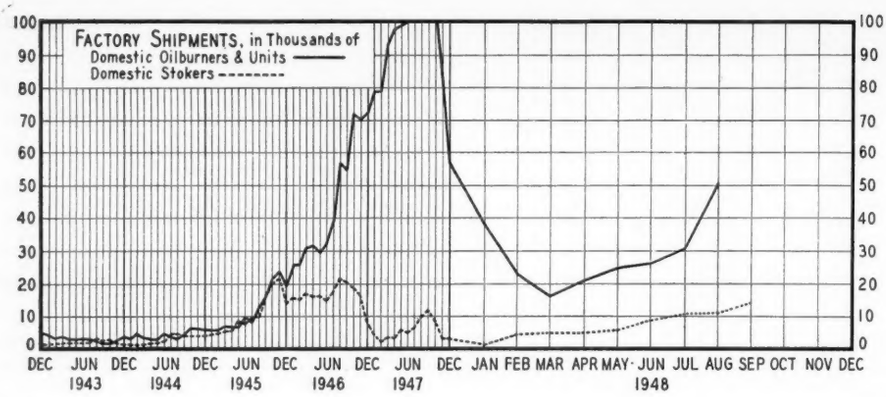
Model LC with slip fit for old tanks.

SCULLY

VENTALARM *Whistling* TANK FILL SIGNAL

T. M. REG. U.S. PAT. OFF

Canadian Licensee—EMPIRE BRASS Mfg. Co. Lt'd., London, Ont. **SCULLY SIGNAL COMPANY** 76 FIRST ST. CAMBRIDGE 41, MASS.

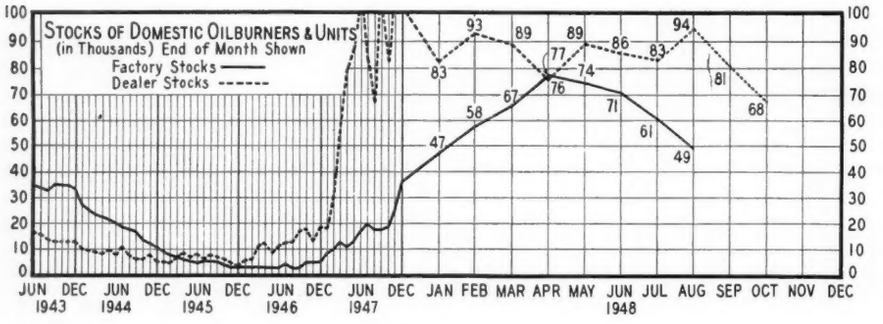

FACTORY SHIPMENTS, in Thousands of
Domestic Oilburners & Units
Domestic Stokers
DEC JUN DEC JUN DEC JUN DEC JUN DEC JUN DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
1943 1944 1945 1946 1947 1948

Shipments of Oilburners and Units

(Including Exports)

Adjusted to include manufacturers other than the 152 reporting to Census Bureau, FUELOIL & OIL HEAT's estimates of shipments are:

	SEPTEMBER			NINE MONTHS		
	1948	*1947*	*Percent Change*	*1948*	*1947*	*Percent Change*
Conversion	39,238	102,172	— 61.5	197,381	735,968	— 73.1
Boiler units	5,966	7,742	— 22.9	26,811	44,156	— 39.2
Furnace units	11,495	20,448	— 43.7	62,704	141,908	— 55.8
All Domestic	56,699	130,362	— 56.5	286,896	922,032	— 68.8
Commercial	2,486	5,400	— 53.9	21,380	41,113	— 48.0
Total	59,185	135,762	— 56.4	308,276	963,145	— 68.0

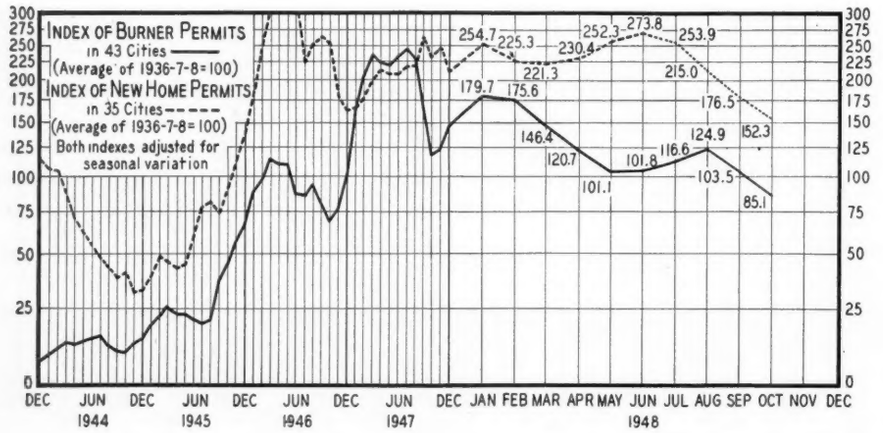

STOCKS OF DOMESTIC OILBURNERS & UNITS
(in Thousands) End of Month Shown
Factory Stocks
Dealer Stocks
JUN DEC JUN DEC JUN DEC JUN DEC JUN DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
1943 1944 1945 1946 1947 1948

October Minimum Retail Prices: Key Dealers

	CONVERSION BURNERS	BOILER-BURNERS	FURNACE-BURNERS
Highest	$500	$1100	$1100
Lowest	230	350	327
Oct. Aver.	348	705	617
Sept. Aver.	349	717	622

Price Index: Conversion Burners: January 1940 is 100%

WHOLESALE				RETAIL			
Oct.	144.7	Six months ago	153.5	Oct.	145.7	Six months ago	149.8
Sept.	145.8	Year ago	141.5	Sept.	147.2	Year ago	145.6


INDEX OF BURNER PERMITS
in 43 Cities
(Average of 1936-7-8=100)
INDEX OF NEW HOME PERMITS
in 35 Cities
(Average of 1936-7-8=100)
Both indexes adjusted for seasonal variation
DEC JUN DEC JUN DEC JUN DEC JUN DEC JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC
1944 1945 1946 1947 1948

Oilheating Trends

PRELIMINARY ESTIMATES of domestic oilburner and unit installations in October are 61,415, the best month of the year thus far. By types of installations the October total was divided as follows: New homes 18,732; Replacements 7,923; Conversions from other fuels 34,760. Estimated total installations for the first ten months of the year were 379,343, and these were divided: New homes 131,687; Replacements 75,979; Conversions from other fuels 171,677.

With only two months to go on the year, it becomes obvious that the total will not reach the anticipated half a million for the year, falling short of it by probably ten per cent.

BURNER STOCKS: Dealer stocks of domestic oilburners and units on October 31 were approximately 68,792, lower than they had been at any time in fourteen months. This would indicate that after rough going in the earlier months of the year, dealers are anxious to improve their cash position during the Fall peak of activity. Factory stocks on August 31, latest available data, were 49,289, again the lowest point since last January.

FUELOIL ALLOCATIONS: By November 1, 58% of reporting fueloil distributors throughout the country had been given allocations of supply for the coming season, ranging all the way from 2 to 40% above what they had last season, and averaging a 12.6% increase. Another 12% of the reporting fueloil distributors had been given no restriction whatever and were told that they could get all the oil they wanted from their regular suppliers. The third group, or 30% of those reporting, was still limited to the same amount of oil as the previous season. It is significant, though, that of this last group that is limited to last season's purchases, seven-eighths say that they can get the extra oil they need in the spot market, leaving only one-eighth of that group, or 4% of the total number reporting, unable to get extra oil from any source.

SPOT OIL MARKET: Among all reporting fueloil distributors from every section of the country, 93% say that they are able to buy in the open market whatever additional fueloil they need above that given them by their regular suppliers. Only from the Middle Atlantic

area were there any companies reporting inability to buy spot oil. Oil men in all other sections said that they could get what they want. Eighty-two per cent of those reporting said that spot market oil is available at posted prices. Twelve per cent said that they have to pay a premium for spot purchases, ranging all the way from an eighth of a cent to 1.7¢, but averaging 65/100's of a cent. Another 6% of those reporting say that spot prices in their markets are below posted prices, ranging all the way from ¼ cent to one cent, and averaging a half cent below.

These disclosures indicate that the fueloil market is relatively steady, that supply and demand are in comfortable balance countrywide, and that there is little indication of price changes, either up or down, in early months.

OIL PUBLICITY: Unfavorable publicity on fueloil has nearly vanished from the newspapers. Only 9% of the reporting companies say that any unfavorable comments on oil supply appeared in their newspapers during the month of October, and notice particularly that this coverage includes the West Coast where a refinery strike was in progress at that time.

FUELOIL MARGINS: Throughout the year there has been consistent agitation among marketing groups to get increased fueloil margins to offset a fast rising cost of doing business. In some areas or particularly with some companies margin increases have been arranged during the year, but when all reports from any section are combined the overall increase is slight and, in fact, in the Midwest the average margin declined during the year. In New England the average margin among those reporting as of October 31 was 2.69¢. On January 1 the average had been 2.60¢. These margin figures do not relate to any specific type of operation since the companies were not asked whether they operate bulkplants or buy at loading racks. The intent of this analysis is to determine only the average amount of margin change during the first ten months of the year.

In the Mid-Atlantic states, the average reported margin for October 31 was 2.44¢, compared with 2.39¢ on January 1. In the Midwest, the average reported margin on October 31 was 2.14¢, compared with 2.23¢ on January 1. Just why the margins in that area should have dropped is not clear, but probably the answer lies in freight rate changes or transport truck hauling increases.

NO. 5 FUELOIL: The one grade of oil that continues hard to get in some parts of the country, and particularly for new accounts, is No. 5. Manufacturers of equipment for burning this fuel have been complaining that their tough luck did not end when the other types of burners came out into the clear on oil supply.

Among the marketers reporting from New England, 43% say that No. 5 oil is still hard to get, while the remaining 57% encounter no difficulty. In the Mid-Atlantic states 53% of those reporting say that No. 5 oil is definitely scarce. In the Midwest the situation is better with only 27% saying that they

(Continued on page 108)

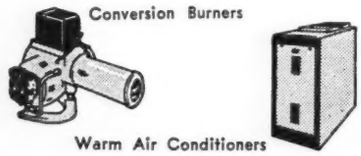
Oilburner* and Building Permits

OILBURNERS					DWELLINGS			
October		10 MONTHS			October		10 MONTHS	
1948	1947	1948	1947		1948	1947	1948	1947
91	218	1221	8359	Baltimore, Md.	242	353	3410	2660
..	591	..	..	Binghamton, N. Y.	6	14	128	93
..	..	..	..	Bloomfield, N. J.	11	..	..	..
..	..	..	..	Boston, Mass.	14	125	..	531
162	225	776	1352	Bridgeport, Conn.	..	..	..	..
..	..	..	..	Buffalo, N. Y.	23	32	..	185
..	..	..	..	Des Moines, Ia.	81	123	823	878
1456	682	..	5980	Detroit, Mich.	342	887	6164	8458
30	106	351	623	Elizabeth, N. J.	0	5	20	83
..	83	..	378	Freeport, N. Y.	..	..	..	..
..	..	..	..	Greenwich, Conn.	23	31	237	201
..	..	..	..	Hackensack, N. J.	2	4	..	32
193	127	1157	1498	Hartford, Conn.	..	..	..	..
26	62	159	446	Irvington, N. J.	0	2	..	23
..	..	..	..	Lynn, Mass.	24	18	154	101
30	..	..	..	Meriden, Conn.	..	..	..	..
270	434	1718	2464	Milwaukee, Wisc.	109	211	1550	1201
200	489	1019	2015	Minneapolis, Minn.	131	198	1161	998
20	48	199	312	Montclair, N. J.	..	..	..	..
41	72	217	456	Mt. Vernon, N. Y.	..	..	..	..
176	..	..	..	Newark, N. J.	..	..	..	..
82	40	664	520	New Bedford, Mass.	..	..	..	..
..	411	..	1018	New Haven, Conn.	..	..	..	..
..	0	..	0	New Orleans, La.	..	..	..	..
19	93	121	343	New Rochelle, N. Y.	14	11	91	68
..	5352	..	45,318	New York City (total)	..	..	..	..
..	4416	..	37,690	Brooklyn-Queens	..	..	..	..
510	936	3591	7628	Manhattan, Bronx, Rchd	..	..	..	..
69	83	1123	804	Norfolk, Va.	43	57	514	689
1	1	11	12	Oakland, Calif.	..	..	..	..
72	458	866	2154	Omaha, Neb.	38	101	..	749
44	49	149	255	Orange, N. J.	1	0	12	5
25	64	221	..	Passaic, N. J.	..	..	..	..
87	159	459	1027	Paterson, N. J.	7	4	96	58
1269	..	5102	..	Philadelphia, Pa.	..	..	..	..
..	..	..	..	Plainfield, N. J.	12	17	84	131
84	151	317	901	Portland, Me.	11	13	136	139
..	427	..	7942	Portland, Ore.	139	141	1526	1177
46	56	168	278	Poughkeepsie, N. Y.	..	..	..	..
75	96	505	942	Providence, R. I.	15	..	158	..
..	..	..	..	Reading, Pa.	3	6	36	26
75	225	674	1419	Richmond, Va.	67	108	819	647
210	386	1401	3308	Rochester, N. Y.	..	..	..	..
51	72	259	294	Rockville Center, N. Y.	31	34	190	187
47	62	204	310	Salem, Mass.	16	2	107	6
245	562	1444	2661	St. Louis, Mo.	50	57	..	332
306	457	1223	2783	St. Paul, Minn.	97	106	..	906
54	104	..	756	Schenectady, N. Y.	..	..	..	..
..	..	..	..	Seattle, Wash.	146	159	..	1585
..	..	..	..	Springfield, Mass.	32	178	463	490
46	51	351	329	Stamford, Conn.	..	..	..	..
..	..	..	..	Trenton, N. J.	4	1	29	55
..	..	..	..	Utica, N. Y.	5	6	110	65
262	461	1396	2914	Washington, D. C.	..	..	..	..
..	..	..	..	West Orange, N. J.	14	6	136	77
..	67	..	300	White Plains, N. Y.	..	29	..	81
140	242	807	1083	Wilmington, Del.	5	5	102	89
..	200	..	1408	Worcester, Mass.	..	..	..	..
58	165	278	659	Yonkers, N. Y.	..	..	..	..
5097	7436	22,828	48,149	*Totals*	1732	2936	18,098	18,582
—31.5		—52.6		*Percent Change*	—41.0		—2.6	

*Permits are not total sales in each market since none are reported from suburban areas, which normally account for 20% to 60% of total sales in each market; nor are they an accurate index where enforcement is lax. Rightly used, however, they are a useful working index.

IT'S TIME TO LOOK AT '49

Have you been selling a PROFITABLE OIL FIRED HEATING LINE?



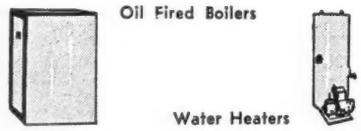
Now is the time to take inventory of your profits for the past year. Have you been selling PROFITABLE oil heating equipment?

Is your heating line a complete line?

The matter of dealer profits has first attention in every General Automatic dealer franchise.

A few valuable protected territories are still open.

GET IN TOUCH WITH US NOW!



GENERAL Automatic

Checks first . . . with the finest.

General Oil Burner Corp.
2300 Sinclair Lane,
Baltimore 13, Md.

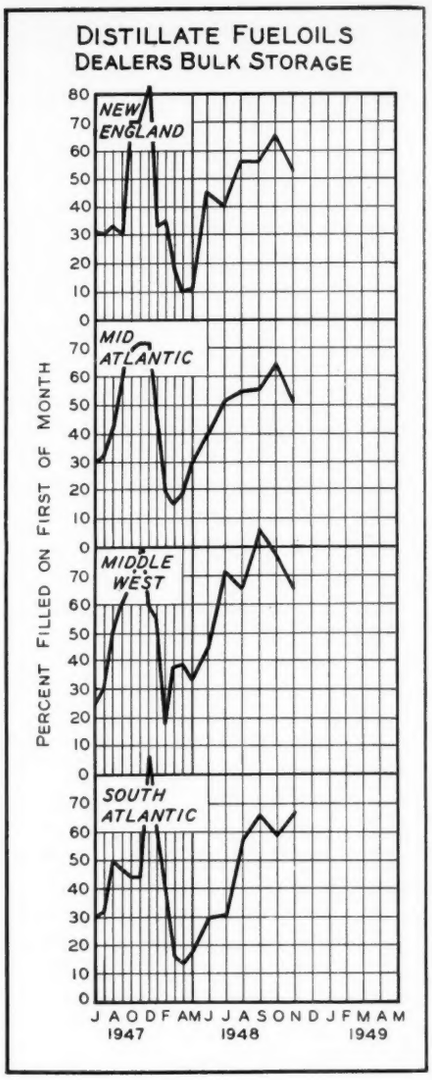
Fueloil Supplies

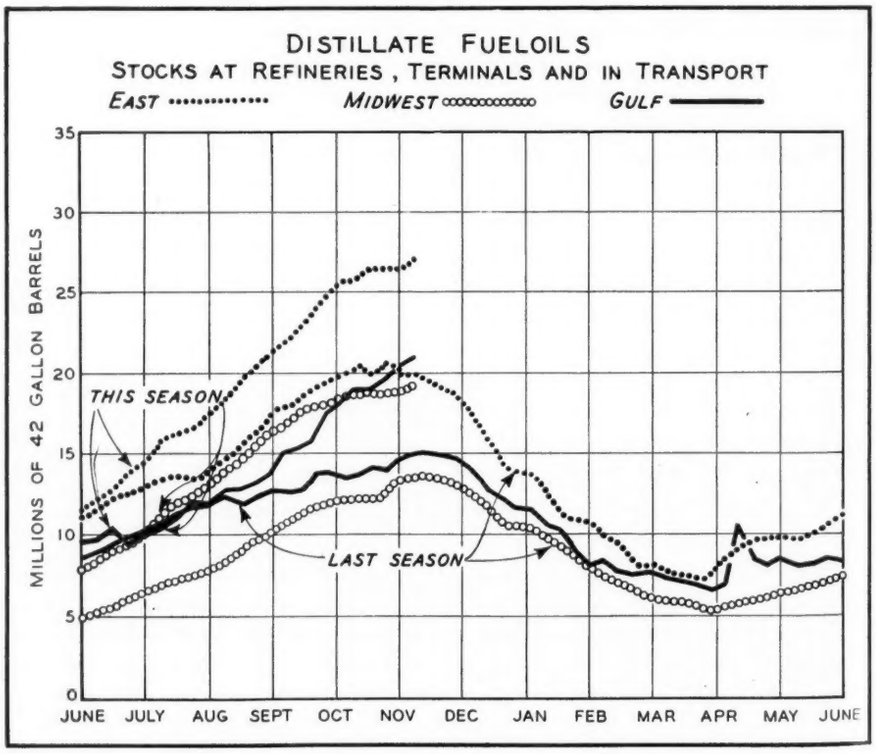
DISTILLATE STOCKS in the local bulk tanks of fueloil distributors on November 1 were 58% of capacity, a significant drop from 71% on the same date the year before. This change is logical for several reasons. Dealers are no longer afraid of fueloil supply, and hence see no reason to strain their bank credit to carry maximum stocks, particularly since the high oil price of today necessitates a much larger line of credit than formerly. Then a few marketers suspect possible price decline, although there is little to indicate any important change before Spring.

DEALER STOCKS
(Thousands of Barrels)

	No. 2 or 3 Distillates	*No. 1, Range, Kerosene*
East Coast		
11-1-48	8,234	2,553
11-1-47	10,217	2,743
Midwest		
11-1-48	2,553	1,381
11-1-47	2,972	1,235
East of Rockies		
11-1-48	10,787	3,934
11-1-47	13,189	3,978
Percent Change	—18.2	—1.1

Distillate stocks at refineries, in primary storage or in transit on November 27, the latest available data, were 68,548,000 Bbls. in the area East of the Rockies, compared with 46,225,000 Bbls. for the same week of the previous year, a rise of 22,323,000 Bbls., or 48%.


DISTILLATE FUELOILS
DEALERS BULK STORAGE
NEW ENGLAND
MID ATLANTIC
MIDDLE WEST
SOUTH ATLANTIC
PERCENT FILLED ON FIRST OF MONTH
0 10 20 30 40 50 60 70 80
J A O D F A M J J A S O N D J F M A M
1947
1948
1949


DISTILLATE FUELOILS
STOCKS AT REFINERIES, TERMINALS AND IN TRANSPORT
EAST
MIDWEST
GULF
MILLIONS OF 42 GALLON BARRELS
0 5 10 15 20 25 30 35
THIS SEASON
LAST SEASON
JUNE JULY AUG SEPT OCT NOV DEC JAN FEB MAR APR MAY JUNE

Oilheating Windfalls

As Philadelphia Central Steam Plants Fade, Hundreds Buy

by

Robert Gray

IMAGINE YOURSELF AN oilheating salesman being driven through a section of fine homes like those shown in the photographs and being told that every one of them must have a new heating plant before cold weather. Imagine further that there were 816 of those homes in the one neighborhood, that the families living in them had been accustomed to automatic heat, and that they wouldn't be able to buy gas equipment because the gas lines were already choked.

If that wouldn't give any salesman high blood pressure, he doesn't belong in our business. Only one thing prevented fullest enjoyment of the situation . . . other salesmen had heard about it too. In fact, so many other salesmen had heard about it that a lot of families disconnected their doorbells, or put signs beside them, "We have bought our oilburner."

This year it was the Aronomink section of suburban Philadelphia that lost its source of home heating when the Aronomink Park Heating Co. had to quit; last year 356 homes in the Wynnfield area were tossed out by the Wynnfield Steam Heat Co. as it folded; next year it will be several hundred homes in Wayne, where the Philadelphia Electric Company's steam plant will give up the ghost.

Unless someone in another part of the country has a better answer than the utility men in metropolitan Philadelphia, it is clear by now that central plant steam heating for residential areas is impractical. Some 15 to 20 years ago there was a rash of such plants going in around Philadelphia, particularly in neighborhoods of upper incomes. At that time oilheating had not advanced to the wide acceptance it now enjoys and almost no one thought of heating with gas—it was much too costly. Yet those homes needed fully automatic heating, and they got it through providing at the edge of the community a brick building with a big boiler and a high stack and a lot of pipes under the streets and yards.

The central steam plants are falling by the wayside in spite of the fact that they charge about twice as much to heat a home as could be done with oil. Harry Marks, president of Modern Heat & Fuel Co., one of Philadelphia's large oilheating outlets, lives in an area having central steam distribution and heats his house that way, but points out that the fuel cost is about double what oil would be. His neighborhood has the steam mains running through the yards and basements, rather than in the streets, and although such mains are insulated they still make the house much too hot on mild days. George Clement, Marks' business associate, suggested that he remove the insulation from the main, put some fins on it and heat his house free, but the objection to that seems to be that the meter reader, on his monthly calls, would be dissatisfied.

Corrosion Sets In

Lionel Jacobs, president of Automatic Heat, Inc., explains that these steam systems, after 15 or 20 years operation, run afoul of corrosion and rusting to the point that maintenance costs swamp them. The underground steam lines are a source of constant and costly repair. Again, a lot of the heat that the steam lines carry underground is dissipated, regardless of the type of insulation employed. Streets carrying the steam mains rarely have any accumulation of snow or ice on them.

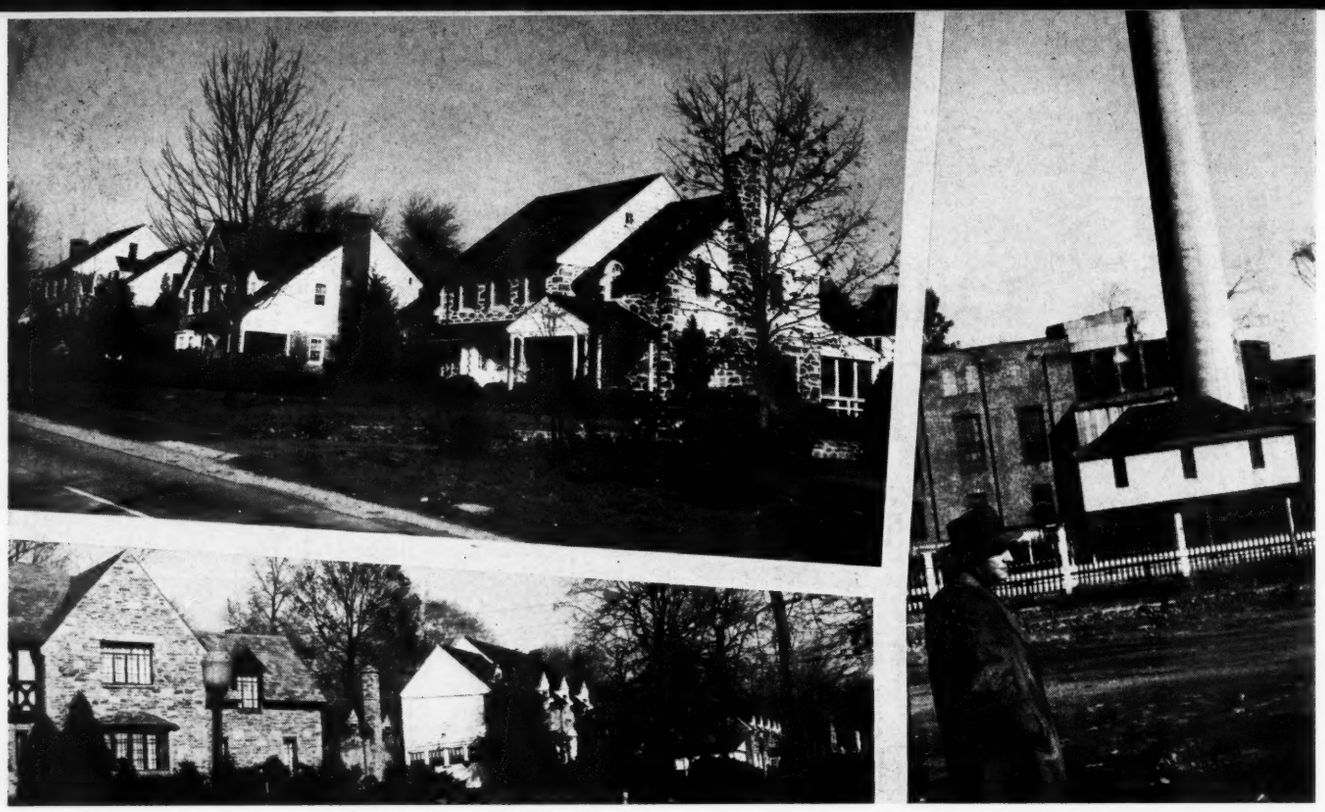
When a central steam utility decides that the jig is up and it has to quit, it isn't as simple as flipping a switch or turning a valve. These steam companies are public utilities the same as a gas or electric company, subject to the wishes of the state's Public Service Commission, and even if there isn't a dime in the checkbook to buy a pound of coal, they can't stop until they get permission.

Customers Resist

That makes it quite a tussle. As soon as the customers hear that the steam company is tired of it all, they get together in committees, hire lawyers to represent them at hearings of the Commission and in general try to force the utility to go on. It isn't that they like to pay the high steam heating costs so much as that they dislike being forced to install new heating systems at a time when they think prices are at a peak. The average installation cost in the Aronomink homes this year was about $1,200, although some ran much higher. Some of the homes have as high as 1,000 ft. of radiation. In the 816 homes affected in that neighborhood the total cost of new individual heating plants ran over a million dollars.

When the Public Service Commission would appear to be favoring the steam company and about to let it quit operating, the neighbors would try other things, such as in the case of Wynnfield last year trying to get all customers to advance the full price of a season's fuel so that the plant could buy coal. At Aronomink they tried to collect $300 apiece this summer to salvage the financial wreckage.

But all of these shot-in-the-arm methods fall of their own impracticality and eventually everyone understands that he is going to be an early prospect for the oilburner salesman. It wasn't until August 16 this summer that the Aronomink people were officially notified that the steam company was being allowed to lock up and that other heating provisions would have to be made for this winter. Fortunately, many of the residents had seen the handwriting on the



When *the central steam plant gave up because of financial troubles, 816 residences of this general high character in Aronomink, Philadelphia suburb, had to get new heating plants all of a sudden. Most bought oilheating. Fred Ritting, oilheating salesman for F. C. Haab Co., sympathizes with the stockholders of the deceased steam plant in the background, but not too much.*

wall and ordered heating plants earlier, but many of them waited to order until mid-August.

By November first, all of the homes had the new heating plants except about thirty where none had been ordered. Those were mostly in situations where a tenant was being forced out and the landlord sensed that one of the surest ways was to freeze him out. Less than a dozen of the Aronomink homes had gone to gas, and those were instances where the owner had ordered this fuel more than a year ago, less than a dozen went to coal, so about 765 have thus far put in oilheating systems.

Installing oilheating in homes fitted for central steam systems is not the simplest job. Central steam operates at pressures around 20 lbs. which means that all valves have too small orifices to be usable in the new system. Also the old system was two-way steam, with the condensation water being returned through a meter and then run to the sewer. There were complications with return pipe levels.

When Fred Haab, Oil-O-Matic dealer, first decided to go after this business he quickly took a couple of jobs at the necessary price to get some experience with the unorthodox piping and fittings of the central steam layout. Even after this precaution, his men had to go back to make some changes on about 30 of the 200 jobs his organization sold. Fortunately, because of his early caution every quotation carried a small contingency allowance which just about paid out over the whole batch of installations in the Aronomink project.

When a selling opportunity like one of these wide-scale changeovers from another fuel comes along, it is interesting to see how various oilheating firms size them up. Haab, who got more of the jobs than any other single organization (130 through his own retail salesmen and 70 through subdealers), early determined that this was one of the best opportunities to make money in an otherwise slow year. He had received better advance notice than some companies, since one of his salesmen lives in the area, as also does Harold Skaggs, Oil-O-Matic division manager.

Pulling virtually all of his salesmen from other parts of the city he gave them each one long street in Aronomink—to work every house day and night while the brief bonanza lasted. There were four mailings to every householder building up to the salesmen's calls. In general, the men were on the job before the big rush of salesmen started—before every dealer around the city had learned all about what was going on.

Lionel Jacobs, Timken dealer, adopted another strategy. He decided to put no more than ordinary effort into Aronomink, believing that while the eyes of the oilheating group in the city were concentrated on that particularly bright spot there should be good picking in other sections. As a result, his men sold only 35 of the Aronomink jobs but during the three month period involved he had fairly good sales throughout the city as a whole . . . in other words, he elected to stay out of the scramble and keep his men in their regular bailiwicks, where they knew their way around.

The oilheating industry is not going to be built on the wreckage of central steam utilities, but it is interesting in a fairly difficult year to find bright spots like this one, or like the situation described in the November issue where a Midwest dealer was having a field day selling installations to farms after natural gas in his town got too cheap to fight effectively. Oilheating is flexible: it's in position to jump into situations that arise from time to time and make the most of them. It isn't hamstrung by pipes under the street—pipes that can get overloaded or waste their heat—because oil fuel can go anywhere anytime . . . it's on wheels.

Oilburner Pulsations

Causes, Diagnosis and Cure of Rhythmic Noises

by
Charles H. Burkhardt*

THE TERM PULSATION long has denoted a common type of service trouble which seems to occur with nearly all types of oilfired boiler and burner installations at some time and to some degree. This pulsation usually includes a type of trouble that is characterized by a noisy, regular fluctuation of the flame. Actually all pulsations are rhythmic; that is, they occur in cycles and it is this intermittent occurrence that causes the vibration and noise that has come to characterize them. We can define a pulsation as a rhythmic flame disturbance; if this disturbance is excessive the fluctuation will be carried over to the system in the form of a constant vibration or puffing. If the disturbance is minor, a fluctuation of the flame will occur over a minimum area with little or no vibration. In both cases, whether the fluctuation is audible or not, operating efficiency will fall, as the CO_2 is lowered.

Pulsations accompanied by vibration are "major" vibrations. Those that result in flame fluctuations with little or no vibration are minor pulsations. Major pulsations of the noise type may be aggravated so that they are accompanied by smoke and soot in greater or lesser quantities which can result in a further development in the form of an odor complaint. It is obvious to all oilburner men in the field that pulsations are accompanied in nearly all cases by smoke, soot or odor to some degree and that their cause, therefore, is basically tied up with a disturbance of the conditions necessary for proper combustion.

A flame that is burning easily in a proper environment and from which the waste gases are being carried away at the proper rate of speed normally would burn quietly and cleanly. Do something to disturb this balanced, clean combustion and immediately the flame will respond by fluctuating. We can see from this, as mentioned above, that the occurence of a pulsation is essentially the result of a disturbance of the basic conditions necessary for properly burning fueloil. These basic conditions are: 1) that the fuel be properly prepared for combustion (atomized or vaporized); 2) that it be mixed with the proper quantity of air in the most thorough manner possible; 3) that this mixture be burned in suspension, which means that the combustion chamber must be sized so that there will be no impingement of over 10% of the total area of the flame; and 4) that the products of combustion, that is, the carbon dioxide, the water vapor and the large quantities of nitrogen be moved away from the flame rapidly enough to allow fresh air with its essential oxygen to reach the fire so that combustion can be sustained at the rate normal for that type of fuel and that the flame be fairly constant in its distance from the nozzle. This is a combined function of the fan and draft. The disturbance of any *one* of these four basic conditions will result in a pulsation.

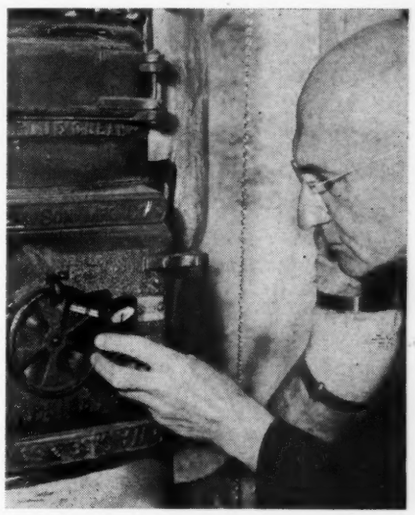
Types of Pulsation

In applying these four conditions to the burning of domestic fueloil, we find that pulsations will break down into two basic types, depending upon which of the foregoing four necessary conditions are altered. The two basic type pulsations are: 1) the combustion pulsation; 2) the draft pulsation.

Combustion pulsations are those which under normal draft conditions are caused by disturbing the actual combustion process as it starts, continues or finishes. It results from four basic causes:

Improper fuel preparation
Insufficient quantity of air
Improper mixing of oil and air (lack of turbulence)
Improperly sized environment (combustion chamber)

All of these except that of insufficient air quantity will result in low CO_2 readings while the pulsation is occurring, usually with little smoke. If the cause of the combustion pulsation is insufficient air, the CO_2 will be high and so will the smoke reading. If the air quantity is above that which is necessary, of course, we will have excess air; the fire usually will be clean; and the CO_2 will be low. With combustion pulsations, the draft conditions will be normal, that is, there will be draft at the breeching and over the fire and the waste gases will be passing from the combustion chamber freely. Thus any pulsation that results in a low CO_2 reading with proper draft is of the combustion type. This does not mean that the draft will be normal while the pulsation is occurring, but it does imply that the draft *would be normal* if the combustion process was not impeded by one or more of the four basic causes mentioned above.



Over-fire draft *measurement is necessary to proper pulsation diagnosis.*

If it is the first condition, that of improper fuel preparation, the nozzle may be dirty, worn or defective. It should be cleaned or replaced. The pump may be operating at a pressure too low to atomize the oil properly. If so, raise the pressure. Many combustion vibrations are cleared up completely by rais-

*Department of Heating & Air Conditioning, Walter Hervey Junior College, New York.

ing the atomizing pressure. This results in a finer spray and a more thorough, rapid type of combustion. It may even be necessary to drop down one nozzle size and step up the pressure considerably to cure this condition.

In addition to these mechanical defects, there is a number of other causes that could result in an inability of the burner to properly prepare the fuel for combustion. Many have to do with mechanical failure of the burner, depending for their peculiar defects upon the type of the burner, whether it be high or low pressure gun type or horizontal or vertical rotary. It could be a condition of the oil itself, such as viscosity changes. In truth, the causes of this incomplete fuel preparation are too numerous to be properly covered in this article.

Insufficient or excess air quantity per gallon of oil as a cause of combustion pulsations may be cleaned up by adjusting for clean combustion with a CO_2 analyzer after the air leaks have been sealed. A 10% CO_2 without smoke should be the goal. A gallon of oil to be properly burned, theoretically needs approximately 1500 cubic feet of air, but due to the average burner's inability to mechanically achieve the mixture with this close air margin, burners are designed to deliver 25% to 50% excess air. By cutting down or increasing the amount of air being delivered in order to eliminate the combustion pulsation, the CO_2 analyzer should be the guide.

If the combustion pulsation only occurs at the start and finish of each operation, then the cause can be an improper balance between nozzle oil delivery and fan air delivery. In a case such as this, when the burner is starting, the oil and air streams build up gradually, but not in the proper ratio for smooth, clean combustion, as is achieved once the burner is up to speed. On starting, the oil spray is normally at its maximum delivery capacity before the fan is. Thus once ignition is accomplished, the oil flame is starved for air until the fan begins to deliver its rated quantity. The result is a starting combustion pulsation which is usually of the minor type. The solution of this condition is to delay pump delivery until the fan is up to speed, or install a fan that will do the job. Conversely, the final closing combustion pulsation is caused by the reverse of this. In this case the oil spray falls off gradually, after the fan has ceased to furnish enough air, causing a closing fluctuation of the flame as it gasps and dies. This fault is eliminated by the use of a solenoid valve cutoff on the pump which instantaneously extinguishes the oil flame rather than its dying by degrees.

Poor Burner Design

The improper mixing of oil and air due to a lack of turbulence, resulting from poorly designed air handling parts on the burner, can cause a constant or running major combustion pulsation. This can be ascertained by the use of the CO_2 analyzer. If draft readings are normal and smoking occurs with a high CO_2 reading, the burner is not getting enough air and the air adjustment should be increased until the smoking clears up. If with a proper draft reading, we get a low CO_2 without smoke, the burner's air handling parts are not creating enough turbulence to do the job properly. Narrow down the blast tube air opening over the nozzle and the CO_2 will pick up as the amount of air can then be decreased, and the running combustion pulsation will cease.

This narrowing of the blast tube opening over the nozzle forces the air to increase in velocity as it leaves the burner and what is more important, it gets the air to enter the spray sooner, at a point closer to the oil spray inception. This increased air velocity results directly in greater turbulence as the air stream meets the oil spray. This in turn gives a finer mixture, producing a higher CO_2 and a quieter, stable flame.

The next cause, that of an improperly sized chamber, is important as this is one of the prime causes of the major combustion pulsation. If this environment (combustion chamber) is to achieve its purpose and produce or help produce a clean, efficient, stable flame with a fairly fixed rate of propagation, it must be of a shape to match the flame. The same type chamber cannot apply to all burners with their different shaped flames any more than the same sized tire could accommodate all automobiles. The flame shape of a burner being installed should be studied and known so that a chamber may be constructed to match it. Next, it must be of the proper size. There is a definite amount of floor area that is necessary for each gallon of oil and this too varies with the make and type of burner being used. Consult the burner manufacturer's installation manual on this. A rough guide that can be used is 100 square inches of floor area for a low pressure burner and 90 square inches for a high pressure burner. These figures refer to heavy firebrick. If insulating firebrick is used, it can be increased by about 5%. Avoid sharp corners that trap the air and set up eddy currents. These cause changing air velocities and counter flow air streams beyond the immediate flame area that result in the flame moving back and forth on a horizontal plane. This increases flame instability and results in a minor pulsation which with any disturbed draft condition will assume major proportions.

It must be emphasized that the foregoing causes of pulsation, strange as it may seem, are not tied in with draft conditions. In such cases, *draft would be normal,* that is, there is at least zero draft over the fire, and the true cause of the pulsation is the disturbance of any of the conditions necessary for smooth combustion *other than draft.* Any effect on draft with this type pulsation is a *result* of the disturbed combustion condition and not a *cause* of it.

Draft Pulsations

Draft pulsations are those in which combustion would be quiet and smooth if it were not for fluctuating, insufficient or excess draft. These are always major pulsations.

The main characteristic of the draft caused pulsation is its relative intensity. The pulsations caused by combustion condition disturbances are relatively light in intensity and appear many times without noise in contrast with those caused by draft conditions. The latter are quite violent. The nature of a draft pulsation is to be cyclic, that is, occurring during an operation with rhythmic frequency. The reason for this lies in the physical action on the flame due to draft fluctuations. This is explained as follows. In the case of insufficient draft, once the burner is ignited and the combustion process continues, large quantities of hot gases are immediately re-

TYPES	BASIC CAUSE	FACTORS CONTRIBUTING TO BASIC CAUSE	INSTRUMENT INDICATIONS
COMBUSTION PULSATIONS --- Mostly minor. Some flame fluctuation and little noise or vibration.	Defective Combustion Conditions --- Draft would be normal but combustion is improper, irregular or incomplete.	Improper or incomplete preparation of fuel for combustion	Low CO_2
		Improper oil-air ratio	Low CO_2. No smoke High CO_2. Smoke
		Over firing (Burner)	High CO_2 High Stack temperature
		Insufficient turbulence	Low CO_2
		Incorrectly sized or shaped combustion chamber (Defective Environment)	Low CO_2
DRAFT PULSATIONS --- Major type. Excessive flame fluctuation, noise and vibration, accompanied by smoke.	Defective Draft Conditions --- Combustion would be normal but draft is insufficient or is excessive.	Insufficient draft at breeching	Draft below —.05
		Insufficient draft over fire (Excessive draft drop through boiler)	Zero draft or pressure reading over fire
		Excessive Air Infiltration into boiler or furnace	Good CO_2 over fire with reduced CO_2 at breeching Draft at breeching — none over fire
		Fluctuating draft at breeching or over the fire	Fluctuating draft reading, Low CO_2, stack temperature reading unsteady
		Weather conditions (Humidity and temperature)	Pressure draft reading and low CO_2 on start Normal draft reading when hot

leased. These gases proceed to move through the boiler. The quantity of gases so released is so great that normally they would not flow freely through the average boiler unless its flue passages were a relatively low pressure area. This is the function of draft. The movement caused by draft creates this low pressure area through the boiler passages and the chimney. *Without this draft, the gases have to be forced out by pressure.* This pressure caused by the lack of draft backs up over the fire. Once this back pressure exists over the fire, it (the fire) is forced to contract in size and move back toward the nozzle, at the same time decreasing in temperature as the back pressure upsets the rate of flame propagation by slowing it down, thus interfering with the chemical reactions going on in the fire. Simultaneously, the flow of air from the blast tube is cut down as the fan is unable to deliver the proper quantity against the pressure existing in the chamber. The flame now once again moves back to the nozzle. With the air supply now diminished because of the pressure, the flame propagation rate again slows down due to lack of oxygen. The flame diminishes in size and as a result less waste gases are produced and the volume going up the chimney is reduced. The pressure over the fire now is lessened and suddenly the flame expands and the single vibration or shudder ensues. The whole cycle now repeats. It is this expansion and contraction due to the build-up and release of pressures that is the pulsation. This fluctuation in flame size may occur several times in a second and the noise, vibration and smoke are as considerable as is the consternation of the home owner.

A closer analysis of the major insufficient draft pulsations shows us there are three steps in its progression: 1) pressure building up through the boiler; 2) diminishing air supply from the fan as it bypasses its air around the housing due to the pressure at the burner mouth; 3) contraction of the flame (reduced cubic volume); and 4) movement of the flame back to and then away from the nozzle. It is this fourth condition that eventually results in the pulsation, for the flame acts as a great plunger thrusting forward on the gases and forcing them against the sides of the boiler with some force, rattling everything that is not securely fastened. As the flame covers a greater distance in its contractions and expansions, the greater will be the noise.

Those few minor draft pulsations which are not noise-making to any extent can be readily ascertained by the use of a draft gauge at the firedoor. The needle will fluctuate violently on the plus side if there is any fluctuation of the flame through the spray over a distance large enough to evidence the presence of a minor pulsation.

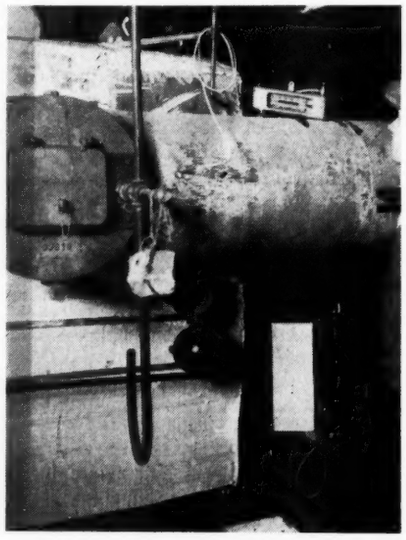
The key to the solution of the insufficient draft pulsation, which type is the main cause of pulsation service, lies in the draft drop through the boiler. Draft

readings should be taken at the breeching and over the fire. The difference between the two is the draft drop through the boiler. Assuming we took a reading at the breeching and found we had —.04 inches of draft and —.01 over the fire, the boiler would have under those conditions a draft drop of .03 of an inch. This means that at any time we had a draft of —.03 of an inch at the breeching, we would have zero draft over the fire. This is too close for comfort and any change in the volume of the products of combustion would result in a pulsation. The draft at the breeching should always exceed the draft drop through the boiler by at least —.01 of an inch and even that is pretty close. If the margin is too close, any weather change that will increase the humidity (moisture content of the air) will produce at least a starting pulsation in the case of hot, white fires and a running pulsation with cool, reddish flames. There is a close balance between the restricted flue passages necessary for an efficient boiler and the draft drop occasioned thereby, especially in view of the small volume, low height chimneys constructed today. Burners that are unable to properly mix oil and air, seriously aggravate this situation.

The influx of any large amount of air into a boiler through the sections may considerably cut down or destroy the draft over the fire. Taking a CO_2 reading at the breeching and over the fire and comparing them will show if this is the case. Any reduction of the CO_2 reading at the breeching when compared with that at the fire, shows air to be leaking into the boiler. Thus if we get a draft drop through the boiler, we find it can be caused not only by restrictions in the boiler but by the influx of excess air that can be quickly detected by the use of the CO_2 analyzer. In this case, the draft gauge would show us the drop, but the CO_2 analyzer would show the cause. This excess air infiltration will cool the gases going through the boiler and alter their velocity. This may be transferred back to the chamber and the flame will fluctuate.

There may always be sufficient draft over the firebox and yet we can have pulsations if this draft is fluctuating. Hence the flame will move back and forth from the nozzle and set up a violent surging of the gases. This will be transferred into sound and a major pulsation will ensue. Excessive draft may pull the flame so far from the nozzle that there will be bad or complete impingement on the rear firebox wall. This may result in a vibration but it is a very remote cause and one not usually met with in the field.

We can see from all the foregoing that combustion pulsations are the effect of the movement of the whole body of the flame predominantly in a horizontal direction over a limited distance through the spray. If the movement of the flame is comparatively small, a light or minor pulsation will occur that may or may not be carried over into the sound level. Light pulsations which may or may not be evident are caused by defective combustion conditions. Intense or heavy major pulsations are usually the result of disturbed draft conditions, especially that of lack of draft over the fire. In such cases, the fluctuation of the flame is violent, not only in a horizontal direction, but over the entire cubic volume of the flame. The fire not only moves, but constantly increases and decreases in size. Here we have an excessive fluctuation actually creating a pressure on the gases within the boiler. This pressure moves any part of the boiler not securely fastened while creating the intermittent, intense puffing or shuddering that characterizes it. This must be remedied, for if left unserviced will result in the inevitable puff-back.



At the breeching *the draft should be read and an analysis of flue gas made.*

Howard Marshall Heads A.P.I. Marketing Group

J. HOWARD MARSHALL, president of Ashland Oil & Refining Co., Ashland, Kentucky, was named vice-president for marketing and chairman of its Marketing Committee by the American Petroleum Institute at its annual meeting in Chicago in early November. He succeeds B. L. Majewski of Deep Rock, Chicago.

Prior to joining Ashland at the close of the war, Marshall was chief counsel for P.A.W. in Washington, and before that held the same position with Standard Oil Co. of California.

Among the 60 members elected or re-elected to the Marketing Committee are 13 who have primary interests in fueloil or oilheating. These are A. T. Atwill, Quaker Mfg. Co., Chicago, R. M. Bartlett, Gulf Oil Corp., John P. Birmingham, president, White Fuel Corp., Boston, R. S. Bohn, president, Preferred Utilities, and president, Oil Heat Institute of America, New York, M. F. Braeckle, president, Richfield Oil Corp., New York, W. C. Burns, Hartol Petroleum Corp., New York, John Harper, president, Harper Oil Co., Long Island City, N. Y., M. O. Hickman, president, Empire State Petroleum Assn., New York.

Also Carl R. Jonswold, vice president, Arrow Petroleum Co., Chicago, Henry L. Schwartz, president, Paragon Oil Co., Brooklyn, John W. Scott, president, Buckley & Scott Utilities, Inc., Watertown, Mass., and H. B. Van Cleve, president, Maritime Petroleum Corp., New York.

In addition to Marshall, the other principal A.P.I. officers elected or re-elected were W. R. Boyd, Jr., president, R. L. Wheelock, Corsicana, Texas, vice-president for production, Chester F. Smith, Standard Oil Co. (N. J.), New York, vice-president for refining, W. Alton Jones, Cities Service Co., vice-president for transportation, L. S. Wescoat, Pure Oil Co., Chicago, treasurer, and Lacey Walker, New York, secretary and assistant treasurer.

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Edward C. Hoeflich has assumed the position of advertising manager, Hajoca Corp., Philadelphia 1, Pa.

Automatic Heating Supplies

Materials and Advice Both Flow from Parts Distributors

by
Henry D. Crane

John T. Lordan
President

W. Stuart Young
Treasurer

Edward D. Cook
Vice-president

WHAT HAPPENS to "old" oilburner men is like the mystery of what becomes of used cars when they get too old. Frequently, both problems can be explained by an investigation of the parts supply business.

Though life begins at forty for most people, too often good oilburner men cease to be good at forty. There must be a Valhalla for these poor souls in their days of low CO_2 where they can impart to a new generation of combustion experts the knowledge they gained the hard way (No heat at 3:00 a.m.—Hair pin to fix the ignition until morning—Put on another blanket and go back to sleep—No service until 8:00 a.m.). In all cases, the experience and know-how gained over the years are not lost to the industry since this relatively new breed of supplier frequently is called upon to help solve the problems that puzzle the less experienced.

The automatic heating supply businesses now flourishing in the better oilheating markets logically are staffed by the older, more experienced automatic heating men. These supply businesses for the most part are the result of an observed need while the principals were selling, installing and servicing equipment. Old line heating supply houses were not quick to add the specialties to their stock that the newer type of automatic heating dealer wanted. Further, it was seldom the dealer or serviceman could get first-hand information on the use of the newer items from established supply houses, so sometimes slowly and often by a clean break with the retail side of the oilheating business, a new type of supplier has appeared in recent years.

Sales managers, fieldmen, servicemen, retail dealers and others who seemed to disappear from the turbulent front lines of the oilheating business often do not leave the business entirely. They simply retire to the less frantic phases of the business, or so it seems to the outsider. Now, they have to find the replacements for the hair pins and the blankets.

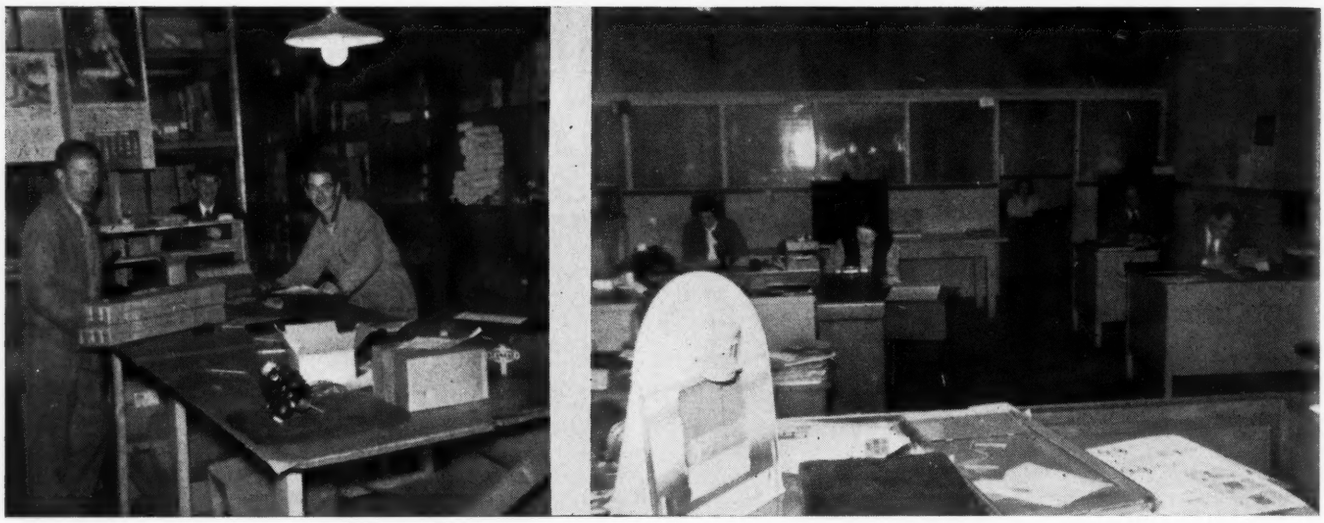
Let's look inside one of these supply operations and you will find a typical business of this kind. There will be variations in detail but most automatic heating supply houses follow the same pattern. One rather typical operation is the Webster Supply Company of Brookline, Massachusetts. The name, which is not significant, is derived from its location at 18 Webster Street, but its personnel consists of a former sales manager and retail dealer, a fuel oil distributor and a manufacturer. The present corporation is only two years old but it draws on experience in oilheating back to 1925. Business volume by the end of the second year approached three-quarters of a million dollars.

Webster organized a department which handles Acetylene, Oxygen and Welding supplies. This department—an innovation in the heating supply business—is a very important part of the organization. With new methods used by the heating and plumbing trade for steam and water piping, solder sweat fittings are fast replacing the old conventional screw type. The Webster Supply Company is distributor in the metropolitan district for Air Reduction Sales Company, one of the largest manufacturers and suppliers, of Oxygen, Acetylene and Welding supplies in the country.

John T. Lordan, president of Webster Supply Company, entered the oilheating business with Silent Automatic in 1925 and later was New England Sales Manager of Silent Glow, before organizing Lordan Engineering Company as a retail dealer and service organization. All of his business life has been spent in the oil heating business and most of it in retail sales and service. Edward D. Cook, vice-president and secretary of the corporation, formerly was associated with the Clifford Manufacturing Company and is in charge of the Welding Supply Department. This part of the business was originated by W. Stuart Young, treasurer of the company, who long has operated the W. S. Young Company, fueloil distributor.

There are four salesmen who cover a definite territory calling on the automatic heating trade. One man calls on dealers in Maine, New Hampshire and Vermont. Another man covers Massachusetts north of Boston. Still another works Rhode Island and Cape Cod. The fourth man works south and west of Boston. The salesmen work entirely with dealers calling on individual companies as fast as they can make their rounds—generally about every ten days. There is some business which arrives directly from the trade by mail or telephone but the greater part of Webster's business is sold on calls by salesmen to the dealers' places of business.

Webster Supply Company was organized in 1946 as a partnership and grew rapidly during the year. In December, it was incorporated and took over the entire building in which it was sharing space and expanded its activities



Webster Supply *counter (left) where small parts and accessories are handled. The general office and display room are at the right.*

to nearly all New England from the local supply business which it did at the start. The lines "in stock" also have been expanded until, with the single exception of steel pipe, a dealer can buy anything from an air valve to an oilfired unit. Stock shelves are well supplied with burner parts and heating accessories. In the area it covers, Webster Supply Co. is exclusive distributor on both domestic and industrial lines of Refractory and Insulation Corporation products which include combustion chambers, hearth cements, Moldit refractories, Stic-tite, Pakinsul, asbestos Cements and furnace Cements. They are also exclusive distributors in the same area for King Chemical Company. Other major items which Webster merchandises are Aldrich, Gould and Twin Control oilburners—Aldrich, Fitzgibbons, Ko-Z-Aire, Peerless, Venko and Waterfilm boilers, furnaces and units—B. & G. and Taco circulators and hot water accessories—Clemmey (Clemco) fueloil tanks — Minneapolis-Honeywell, Penn, Perfex and White Rodgers controls—Bacharach instruments—Revere copper tubing and piping—Flagg and Keystone sweat fittings—Fulflo and Klemm filters —Apthorp and Delavan nozzles—Rochester and Galongage tank gauges, Field and Perfex draft controls—McDonnell & Miller and Watts cut-offs, feeders and relief valves—Scully Vent-alarm signals. Products of a more general nature include Dole, Vent-Rite, Maid-O-Mist valves, Beacon-Morris and Tuttle & Bailey convectors, Trageser copper tanks, Bradford Gas and Electric water heaters, Lau blower units and wheels, grilles and registers, unit heaters, vacuum cleaners, kitchen cabinets, etc.

Technical Assistance

The building is constructed so that trucks can back into the loading platform inside the structure to take on heavy materials and equipment. Stock is arranged to be easily available at the platform. Aside from the many products this type of supply house makes available to oilheating men in their own territories, the old timers who usually staff these businesses are a constant source of information on problems that arise in the field. Conventional heating supply houses, except in rare cases, have nobody who can diagnose a starting pulsation, odd pump behavior or temperamental control action and suggest a series of possible cures. Not all this consulting service—frequently by telephone—leads to the sale of new equipment but this is not important to these oilheating supply men. They are anxious to be of help to their customers, and most of them take the longer view that satisfactory heating is the surest way to build the individual they serve.

Product Selection

This view also explains the care with which most specialty supply firms select the products they offer to the oilheating individual. Webster Supply Company, like a hundred other large and small oil heating supply companies, is trying to build the industry while it competes for its share of the business.

The need for convenient sources of supplies was recognized while the principals were gaining the know-how that has made them invaluable to thousands of oilburner dealers and service organizations.

U. S. Department of Labor Fueloil Prices September

FIELD INVESTIGATORS for the Department of Labor monthly check prices of principal fuels in several cities in each section of the country. Getting retail quotations from various suppliers in each market, the prices are averaged and published. Those in the table that follow were taken Sept. 15 (cents per gallon):

	Range	*No. 1*	*No. 2*	*No. 3*
Boston	14.20	14.05	12.36	..
Manchester	15.23	14.80	13.08	..
Portland, Me.	14.20	14.20	12.30	..
Buffalo	15.55	..	13.84	13.84
New York	..	..	13.04	..
Philadelphia	..	13.50	12.00	..
Chicago	15.75	15.28	13.57	14.20
Detroit	..	15.12	14.45	13.18
Milwaukee	..	15.56	14.22	14.30
Kansas City	..	13.32	12.68	12.89
Minneapolis	15.07	14.83	14.12	14.13
Baltimore	..	13.22	12.04	..
Wash., D. C.	..	13.60	12.50	..
Jacksonville	..	14.83	13.48	..
Norfolk	..	13.40	11.40	11.40
Richmond	..	13.70	11.80	..
Savannah	..	16.62	15.00	..
New Orleans	..	14.63	12.88	12.67
Portland, Ore.	..	13.30	11.00	7.14
San Francisco	..	13.29	10.97	7.07
Seattle	..	14.28	12.15	7.29

*Price includes 1% sales tax.
**Price includes 2% sales tax.
***Price includes 3% sales tax.

Low Pressure Burners

2. Construction and Operation of the Williams Oil-O-Matic

Second of a series by
Fred Feigenbaum* and
John E. Dignam*

WILLIAMS OIL-O-MATIC was a pioneer in the domestic low pressure field, and its reputation is well established. One of the reasons is that Oil-O-Matic is well made and often runs for long periods without service or repair. This fact tempts an owner to wander from the installing dealer. He concludes he will never have any burner trouble, and when trouble finally develops he may find himself doing business with a service organization that does not understand the burner.

The Williams began as a single delivery burner, but early in its development was changed to parallel delivery using the low pressure cycle. In processing the oil and air for combustion the burner draws oil and air into its rotary compressor, where they are mixed, delivers them into a sump for separation, and carries them separately to the nozzle where they are remixed. The fuel is atomized in crossing the nozzle orifice by air friction.

This burner does not use the compressor for pumping oil from the source of supply, as do some of the other cycle type burners. The oil tank is usually at a higher level than the burner, so that the fuel is delivered to the burner by gravity. Where the tank is lower than the burner an auxiliary pump is installed on the bell-housing of the motor, driven directly from the motor shaft. This pump merely circulates a flow of oil from the tank, to maintain a low pressure at the burner inlet port. Oil not used by the burner is returned to the tank through an overflow pipe.

The external design of the burner is conventional, with direct drive from the motor to the other moving parts. On one side of the fan housing is the motor, built by the burner manufacturer, and integrated into the whole assembly. It is not interchangeable with other motors. In line with the motor, on the other side of the casting, are the pumping devices, with the control parts flanged to them. The sump, generally called the stabilizer, is fed through tubing from the compressor. It is located at the rear end of the nozzle assembly, and it forms the back cover of the blast tube.

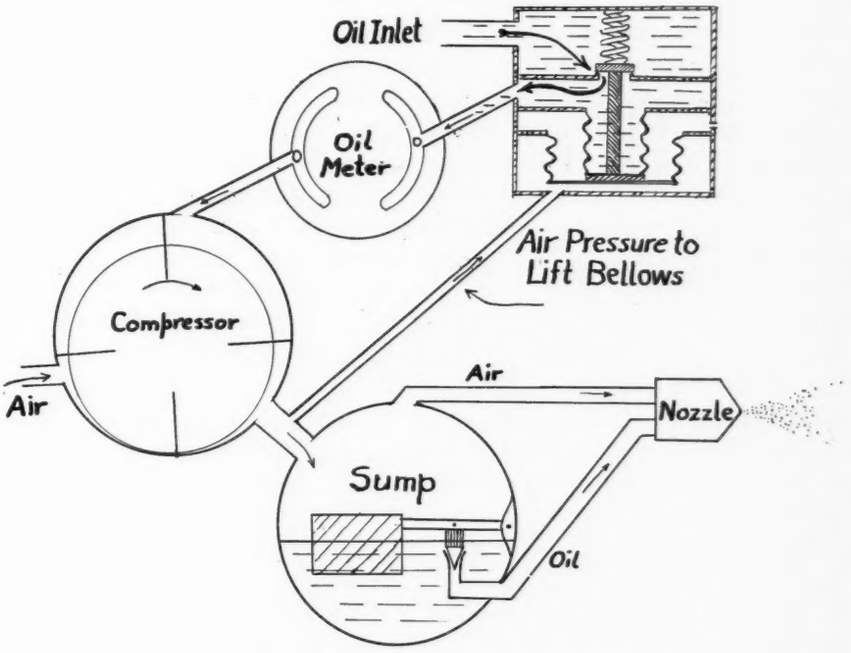
Oil comes into the strainer, located in the valve housing above the pumping members. When the burner is not running fuel cannot get beyond the inlet valve in this assembly. This valve is held in its seat by a spring, and the operating force to lift it against the spring is air pressure from the compressor. This pressure is applied, when the burner starts, to the underside of a large bellows, whose off side is vented to the atmosphere. This bellows is compressed by the developed pressure, and its movement is exerted against the underside of a smaller bellows within it.

This small bellows is the means of sealing in the oil, while giving movement to the valve stem from an outside source of power. The entire arrangement prevents oil from flowing into the burner when the compressor is not developing pressure. The pressure required to open the valve is approximately one pound.

When the inlet valve opens, fuel flows into the metering pump. This device is used only to provide a regulated flow of fuel. Because of its small displacement it is incapable of exerting any great suction on the incoming oil; for this reason the supply source must be above its level. Its ability to move oil brought in by gravity is entirely dependable.

The metering pump, called the Thrift Meter, is a reciprocating pump, its piston moving back and forth in a revolving cylinder. As the rotor containing the pumping cylinder turns, the piston travel is guided by an eccentric ring around the rotor. The piston is held against the eccentric ring by a spring. If the rotor were exactly concentric to the ring there would be no movement of the piston, and no oil would be displaced.

The position of this external ring is variable, from a maximum to a minimum setting for each burner size. Adjustment is made from outside the metering pump housing, by means of



Williams Oil-O-Matic *low pressure cycle.*

*Automatic Heating Department, YMCA Trade and Technical School, New York.

a screw, made leakproof by a packing gland. Turning this screw *inward* causes the ring to become more eccentric, giving the piston a longer stroke. This increase in travel causes a greater quantity of oil to be metered. When the screw is backed off there is less piston movement, and therefore less oil pumped. This adjustment is to be found at the underside of the pump housing, and is always vertical.

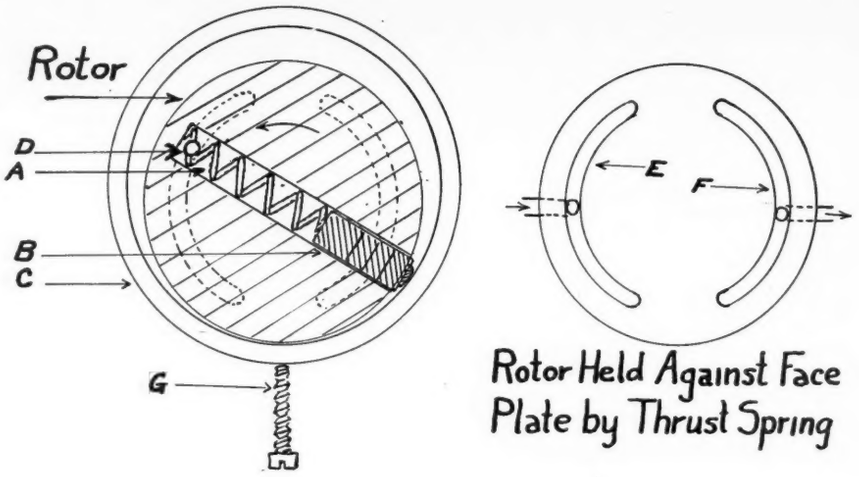
The rotor containing the piston is machined to fit a stationary surface containing two crescent shaped ports, one of which is open to the fuel coming down from the inlet valve, the other to the discharge tube to the compressor. The turning of the rotor causes the pump inlet orifice to pass the intake crescent while the piston is on its intake stroke, and a metered quantity of oil is drawn into the cylinder. When the piston reaches the end of that stroke the orifice of the cylinder is beyond the inlet crescent, and approaching the outlet crescent. In passing across this crescent the piston travel is reversed discharging the oil drawn in into the compressor. Each of these crescents is nearly 180 degrees in length, so that any position of the piston connects to an inlet or discharge crescent.

This unit was designed in this way to solve two definite problems found in orifice type adjusting devices; that caused by changing viscosity, and that of stoppage. Most metering devices run for years without requiring cleaning or servicing.

In the compressor, called the Pressurotor by the manufacturer, the fuel meets the air which has been drawn in through a muffler needed for silent flow of air to the compressor.

Each compressor chamber, filled with its quota of air, moves from the suction to the pressure side. The oil drawn in lubricates the vanes and the rotor and creates a seal between the chambers. The mixed oil and air are ejected through the compressor outlet port into the tube leading to the sump. The outlet port provides pressure for the large bellows of the inlet valve.

The application of sump design, as discussed in the first article, will give us a good indication of what to look for in this separating chamber. The rule stated was that if the oil regulating device was before the compressor, the float in the sump would control its fuel level by acting on the oil going to the nozzle. The metering pump in this burner delivers an exact quantity of oil to the compressor, and exactly that quantity reaches the sump. In order that the proper level of oil be maintained, the float must provide that the oil going to the nozzle moves exactly at the metered rate.



Metering pump *Spring* (*A*) *holds Piston* (*B*) *against eccentric Ring* (*C*). *Turning rotor causes piston to move in cylinder. Oil admitted from Crescent* (*E*) *through Port* (*D*). *Oil discharged into Crescent* (*F*) *through Port* (*D*). *Screw adjustment* (*G*) *alters piston stroke by varying position of eccentric ring.*

The sump gives the compressor mixture time and space to become separated. While the oil is falling out of the mixture the air is constantly passing through the sump on the way to the nozzle.

There are two outlets from the sump, but the service man is often confused because there appears to be only one. The pipe from the sump to the nozzle assembly has within it a smaller tube, which is connected to the float controlled valve at one end, and the oil passages in the nozzle at the other. The outside pipe carries the pressurized air from the sump to the nozzle. This does not show in the diagrammatic illustration, in which two separate pipes are shown, for simplicity.

The float is connected by leverage to the outlet valve at the entrance to the oil tube, raising it just enough to deliver the quantity of fuel being delivered by the metering pump. The level is maintained high enough to keep the valve covered with oil at all times, insuring that no air gets into the oil supply to the nozzle to interrupt the spray.

The oil travels uphill on the way to the nozzle. This makes it unnecessary to have a cut off valve in the nozzle line to stop the supply of fuel at shutdown. The small quantity of oil left in the tube falls back into the sump when the pressure drops.

The nozzle construction is of the conventional slotted type. The oil is delivered through tubes from the rear of the nozzle into the slots, where it meets the fast moving air. The slots cause the mixture to be spun rapidly in the whirl chamber, and the air blows the oil across the sharp edged orifice with great force, turning it into a fine mist. The spinning effect in the nozzle shapes the spray into a conical pattern, producing the type of fire suitable for standard combustion chambers.

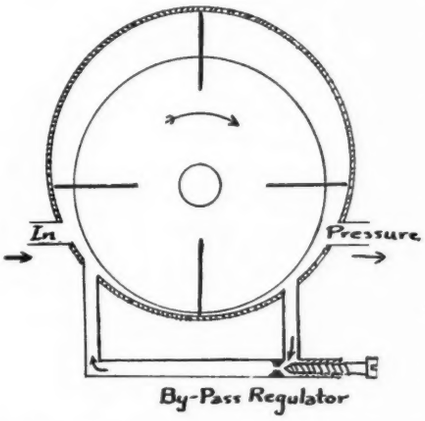
Many people believe that the air delivered through the nozzle is a large part of that needed for combustion, and that the fan in a low pressure burner is almost incidental. Actually the quantity of air coming through the nozzle is small, and its purpose is to supply the atomizing force for the oil. Well over 90% of the combustion air is supplied by the fan.

The fan air adjustment on the Williams is similar to air shutters on conventional burners. It is between the fan housing and the pumping parts, and is adjusted externally. From the fan the air is sent through the blast tube to a set of deflector vanes around the nozzle assembly.

Adjusting the Williams Oil-O-Matic

The service man who works on a Williams for the first time is in for a surprise when he attempts to adjust it. None of the reactions of the flame to the adjustment make any sense to him. His difficulty results from expecting the same response from this burner which he gets from high pressure burners.

He generally finds that by turning one of the adjusting screws that he is able to increase the flame size immediately. Believing he has found the oil adjustment, and being satisfied with the fire, he prepares to leave. Suddenly he finds that the fire is right back where it was before the adjustment. He tries



Oil-O-Matic's *method of regulating air pressure.*

again, getting the same result. The frustration drives him to seek another approach.

He finds a similar screw at the bottom of the pumping unit, and he goes to work on that, giving it a full turn. Nothing happens. More bewildered than ever, he turns his back to the burner to think it over. When he looks again he discovers that the fire now fills the entire firebox of the boiler. He goes back to the adjustment and backs off the screw, without apparent effect on the flame. After a short interval, however, he finds it has shrunk almost out of sight. At about this point the confusion becomes complete. Some men give up and suggest to the owner that he get rid of this mysterious apparatus and replace it with something more manageable.

This service man has been applying deductions applicable to high pressure burners. He has been expecting immediate response in the fire to his adjustments. He does not realize that time is required in order to see the ultimate reaction of the burner to the main adjustments. To understand the reason for the delayed action it is necessary to know the cycle of operation and the way the control parts fit into it.

When the oil metering screw is turned inward, it immediately begins to supply more oil through the compressor to the sump, but the adjustment does not immediately affect the nozzle because the float is still holding the needle valve at the same opening as before, thus maintaining the same rate of flow of fuel through the valve to the nozzle. The new setting causes the level of oil to rise gradually in the sump, and the float slowly raises the needle further out of its seat. This gradual change appears in the flame, until a point is reached when the float valve is discharging exactly as much oil through the nozzle as the Thrift meter is putting into the sump. The flame becomes normal for that flow. A decrease in the output of the metering pump is likewise slow to respond at the nozzle.

A good rule to follow is to allow at least one minute to elapse after any change in adjustment, until the float finds its new control level, before deciding on any further change.

Any change in compressor pressure is seen right away in the fire, because the oil is being forced through the float discharge valve at a different pressure. But within a short time the float rises or falls, changing the position of the valve slowly, until the output again equals the input from the metering device, which has not been changed.

For example, let us raise the pressure to its highest point, by closing the compressor bypass completely. The flame immediately gets large and smoky. Because we did not change the setting of the metering device, the fuel still comes into the sump at an unchanged rate. The level of the oil falls in the sump, because more is now going out than is entering. The float begins to close the valve to the oil tube. The float will continue to fall until it has found an output level where it is again feeding oil to the nozzle at the metered rate.

Initial Firing

Only one gauge is used in testing and adjusting the Oil-O-Matic, a pressure gauge with a range of from 1 to 10 lbs. This gauge is installed in a ⅛ pipe tapping in the sump. The chief reason for using the gauge is to see that there is enough pressure to open the oil inlet valve. This requires about one lb. pressure. A margin above that should be provided to prevent faulty action of the valve, which might result in a safety shutdown.

It is usually recommended that the pressure be set just below 2 lbs. to keep the flame from being too noisy. Most service mechanics reduce the pressure setting to just above the point at which stars are seen in the fire. These are relatively large particles of fuel not completely atomized by the lowered pressure. Higher pressures can be used if the flame is improved without exceeding a reasonable noise level.

When starting a new Williams, or restarting one which has been disassembled to any great extent, a definite procedure should be followed. The seemingly indecisive way the unit starts under this condition, though strange to thinking of the service man accustomed to other burners, is characteristic of Oil-O-Matic.

Considering the pattern of the basic cycle, it should be obvious that time is important. When the unit is dry it is necessary to vent the valve housing in order to get oil into the burner. Time is required to build pressure to open the valve, so that oil can be admitted to the metering pump. The housing of this pump must be filled with oil before the piston can begin to move oil to the compressor. The oil discharged by the compressor must reach a level in the sump *high enough to cover the outlet port.* This alone takes several minutes.

As the liquid level reaches the point at which the float is barely raising the needle from its seat, oil begins to flow to the nozzle at a low rate. If the service man has left the air shutter open as he does with other burners, clouds of oil vapors pass unignited into the chamber and the boiler passages because of the exceedingly lean mixture. Fearing a puff back he immediately shuts down the unit.

In starting a dry unit the air shutter should be entirely closed. As the sump level increases to match the input

from the metering device the fire will build up in size to its proper firing rate. The air shutter can be opened gradually keeping pace with the fire to prevent smoke.

Understanding the time element involved, and the proper use of the air shutter will greatly aid in servicing this burner. Final pressure adjustments are always made on the full, normal fire.

Service Hints

The first thing to be checked on a Williams which is not producing fire is the pressure. Lack of pressure can cause the inlet valve to fail to open.

If proper pressure is not being developed, look for a dirty muffler. Dust is drawn into the unit by the compressor, and the small muffler openings may be clogged. The muffler should always be checked first.

Another cause of pressure failure is worn rotor vanes. Air dirt can have its effect here, though the vanes are made of a durable, long wearing material. The entire compressor unit may be worn out, if the burner is old, though this is not found frequently. A long lay off period, such as during the summer season, can cause the vanes to become stuck in their slots, making pressure build-up impossible. It is unnecessary to disassemble the compressor to free stuck vanes. A good solvent introduced into the unit through the air inlet will generally remedy the condition.

With a rotary compressor which is only partly worn, readjusting the pressure regulating screw may again supply sufficient working pressure.

Oil failures can be traced simply by a visual method. Remove the valve housing vent cap after shutting off the oil lines. The container should be full, if not the problem lies in the delivery to the burner. Finding the valve housing full, turn on the unit leaving the cap off and watching the valve stem top, which is visible through the opening. If pressure exists in the unit the valve should rise. If it does not, there are three possibilities, either the valve stem is stuck and can be freed by turning it with a screw driver (the valve stem head is slotted for this purpose) or the large bellows is leaking and must be replaced. The last reason is that the small bellows has become clogged (it can fill with dirt) and must be removed for cleaning.

If the valve stem rises the oil should flow from the chamber into the Thrift meter. Failure of the oil to disappear from the assembly, means the Thrift meter is not working. The possibilities opened by the failure of this device are usually four: (a) the piston sticking, (b) the spring behind the piston broken and inoperable, (c) the key shaft connecting the rotor of the Thrift meter to the motor shaft is sheared, or (d) stoppage in the inlet passages down to the metering device due to rust and scale. These four conditions are quite unusual, being cause usually by long lay-offs or high water content of oil. Any of the four would require disassembly of the Thrift meter unit so that the diagnosis is completed and the trouble remedied.

If oil disappears from the upper housing this indicates oil is getting through the compressor into the sump, and is not reaching the nozzle. The three possibilities are—clogged nozzle, clogged oil tube, or sunken float holding the oil outlet tube closed. Because the openings of a Williams nozzle are very large, complete blockage is almost unheard of; failure of this type then would indicate the clogged oil tube or sunken float. Either the nozzle blockage or oil tube blockage will cause large increases in pressure gauge readings. Servicing any of these items involves removal of the entire nozzle assembly and opening of the sump.

Because there are two bellows in the assembly, diagnosing which of the two need replacing before you open the housing is important. If either one leaks, oil will be sent out through the bleeder hole in the casting used to vent the inside of the large bellows to the atmosphere. If, when the burner is running the opening is discharging oil with pressure (that is, blowing it out in bubbles) the large bellows is leaking. If, however, it runs out steadily and flows smoothly over the edge down the casting, the small bellows is leaking. *Never* plug this opening up with anything to stop this oil leak; replace the bellows immediately.

The Flooded Sump

The flooded sump is about the most serious trouble found in low pressure burners. Its effects can be dramatic; the large fire caused by it can force the boiler doors open and loosen the smokepipe. Of course, these troubles are rare.

Flooding can be caused by a leaky inlet valve. Oil leaks into the burner and creeps through the compressor during the off period. The sump fills up, and the float raises its control valve to its highest point. When the burner starts, the pressure forces excessive oil through the wide open valve and to the nozzle, causing the fire to be big for a short while. The flame subsides to normal as the float finds its proper operating level for the oil being metered in.

The occupants of the house are usually warned days or weeks before any real trouble occurs, by the starting flame roar and the odors which get worse from day to day.

Repair of the valve, and cleaning out the oil passages in the housing are needed to correct the condition. It is important to clean out the small bellows, because it sometimes pockets dirt and prevents proper operation of the inlet valve.

Points to Remember

To make the fire larger or smaller, the Thrift meter adjustment is used, not the pressure adjustment.

Pressure is changed only to increase the efficiency of the breakdown at the nozzle and will not alter the size of the fire as far as its gallonage is concerned.

Time is an element to be considered in working with any Williams burner.

The next article in this series will deal with the application of the General Electric burner to the low pressure cycle, its component parts and the diagnosis of its problems.

◈

Robert Wray Porter, assistant to the president, National Radiator Co., Johnstown, Pa., died suddenly on October 26 at his home in South Orange, N. J. Mr. Porter was associated with the company as a management consultant from 1931 to 1933, specializing in sales promotion, advertising and marketing problems. In 1946 he joined National as assistant to the president. He was 60 years old at the time of his death.

Engineers without Degree

Alfred University Two-Year Graduates Start with Know-How

NEW YORK STATE, through its Technical Institute program, is attempting to meet industrial needs in a wide range of occupations. The chief heating and airconditioning training center is located at the New York State Agricultural and Technical Institute at Alfred University. This institute has been in operation for many years and is operated completely from State funds tuition free to state residents. The courses offered are two-year terminal courses, non-degree granting, although transfer credit is granted by most engineering schools. Advisory groups from industry are in direct contact with the school to evaluate the programs offered, to offer suggestions for improvement and in general to make each program an efficient and effective means of aiding industry with its technical personnel problems. The training of the students graduating, although specialized in nature, is sufficiently broad to enable the student to secure gainful employment in two or more fields.

The course under present consideration is a two year program including the fields of heating, refrigeration and airconditioning. These three fields form a natural combination because of the basic concepts in each being the same. For example, the theories of Thermodynamics apply to heating as well as refrigeration and airconditioning students entering the course as high school graduates having two and one half years of high school mathematics and one year of high school physics or the equivalent. If there are students desiring to enter the course who are high school graduates in good standing, but do not have the necessary mathematics or physics background they may enter a three year program, the first year of which is devoted to basic mathematics and physics make-up or refresher work. On successful completion of this first year, the student may continue into the regular two-year program.

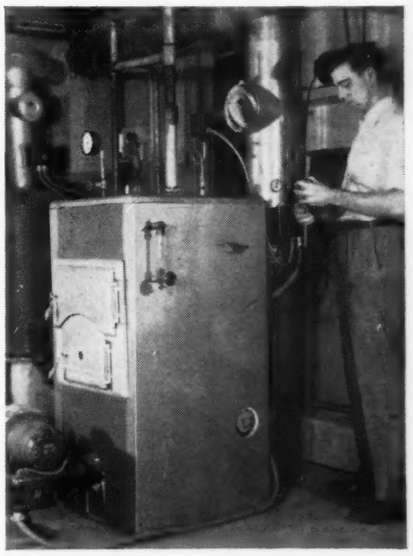
The two year program consists of shop work and theories in the three fields with necessary related and cultural studies to provide a well-balanced and rounded program.

During the first semester six lecture hours each week are devoted to heat theory. Three of these hours are constituted by Physics 1, which is a study of thermodynamics.

The heat laboratory is conducted in a well-equipped shop containing the usual sheet metal tools found in small shops as well as many types of domestic and small commercial furnaces. The study of heat in the first year covers such phases as fundamental concepts of heat, work energy and power, thermometry, calorimetry, heat transfer, change of state, expansion of gases, liquids and solids, properties of steam, fuels and their combustion, coal, gas and fueloil production and uses, particular properties of combustion of each type of fuel, detailed study of the various equipment used for burning fuels, load calculations, combustion chambers as well as a study of other heat items and charts.

The purpose of the shop program is to develop the skills of handling tools and equipment as well as to learn how to perform various operations of installation, servicing, analysis and conversion. The sheet metal part of the program is not designed to develop sheet metal workers, but to familiarize the student with the operation and fabrication of parts so that when he advances into a supervisory status, he will have a working knowledge of the specialized field of fabrication. Most of the emphasis in this shop is focused on oil, gas and coal burners, furnaces and controls. It includes their erection, actual operation, analysis of operation and servicing. The furnace area includes gravity air, forced air, hot water (gravity and forced circulation), and steam, and radiant heating devices.

Conversion *burner installation.*



Checking *efficiency in a conversion installation.*

The second semester deals primarily with refrigeration.

The related information of the first year provides the student with a sound background in college algebra and trigonometry, electrical and mechanical drafting as well as the fundamentals of DC and AC electricity. Considerable emphasis is placed on the electrical side of the program. It has been noted from industrial survey many of those in the field do not comprehend the electrical problems confronting them. Circuit

Installation *of a domestic warm air unit.*

work and the purpose of components in the circuits are clearly exemplified in the electrical studies as well as a digest of trouble shooting procedures.

The second year is a period of greater specialization than the first. The theory and laboratory study of refrigeration carries into the commercial level.

The electrical shop offers the student an opportunity to gain the fundamental skills of house and small commercial wiring as well as a shop study of small motor servicing and re-winding.

The mechanism course is a composite course bringing together information important to the program, but not found elsewhere in the program. It includes a study of the various forms of power transmission causes, linkage, and structural information.

In the last semester there are three lecture hours per week devoted to Air Conditioning Theory. This includes a study of summer and year-round air-conditioning systems and controls. Major emphasis is on the heating phase of the equipment, calculations, handling of charts and technical problems of installation and operation.

The design courses are presented in a practical manner. Architect plans are utilized in designing heating installations. Installations operations includes an evaluation of losses and heating load, selection of the correct equipment, lay-out of installation and cost estimating the job. Installations such as forced air, hot water, steam and all weather air conditioning are included. The duties of a sales engineer are duplicated as near as it is possible to do so in a class room laboratory.

The English and economics courses are introduced to aid the student in successfully fulfilling the obligations of his employment and to provide a desirable background for worthwhile use of his leisure time. Good reading practices, good expression, both oral and written, study of civic and social obligations, domestic and marital relationships and current affairs are incorporated in the programs. Various campus activities, such as athletics, clubs, forums and dramatics are included in the students program in an attempt to round out the individual's background.

The progress of the student taking this course is graded in a unique manner with the purpose of offering his future employer a more meanful criterion for evaluation of the individual. Each instructor in every course the student takes, grades him not only from the scholastic angle but in light of four other items; application aptitude, dependability and attitude. A composite study of the grades in each course the student has completed results in fairly accurate evaluation of his ability, attitude and dependability. Numerous standardized tests are completed by the students, the results being also available to employers. The standardized tests used are those normally found in the larger industries for personal evaluation.

Hand tool *operation in the sheet metal shop.*

Students completing this course have found gainful employment in the various fields of heating, refrigeration and airconditioning, ranging from installation and service men to sales engineering. The school attempts to exercise the best means possible in evaluating the various phases of employment each student has potentialities for successfully filling. Such information is freely furnished any prospective employer considering securing the services of a graduate. Personal interviews of employer and employee are desirable to round out the recommendations of the school.

Reynolds Succeeds Champlin Heading Information Comm.

CONGER REYNOLDS, Director of Public Relations for Standard Oil Company (Indiana) was elected Chairman of the national Oil Industry Information Committee for 1949, it was announced by the Committee after its meeting in Chicago, November 11. He will succeed Ralph C. Champlain, Ethyl Corporation, New York, who headed the Committee this year.

The Oil Industry Information Committee, composed of public relations and advertising men, was organized about two years ago to direct the nationwide information program of the oil industry. Mr. Reynolds has been a member of this committee since its formation.

Four Vice-Chairmen also were elected by the Committee for 1949. They are Richard Rollins, Atlantic Refining Company, Philadelphia; George H. Freyermuth, Standard Oil Company (N. J.), New York; G. Stewart Brown, Standard Oil Company (California), San Francisco; and John Clark, Lion Oil Company, Eldorado, Arkansas.

The oil industry public relations program, of which OIIC is a major element, has been allotted $1,850,000 for its purposes in 1949.

A. E. Lacomblé, president Shell Development Co., research affiliate of Shell Union Oil Co., has been elected chairman of the board as of January 1. He will be succeeded by *M. E. Spaght,* now vice president of Shell Development. Mr. Lacomblé, who had maintained headquarters in San Francisco, will take up his new duties in New York early next year.

Oddities in Servicing—III

Ingenuity Saves Time and Gives Emergency Overnight Heat

by
J. W. Schulz

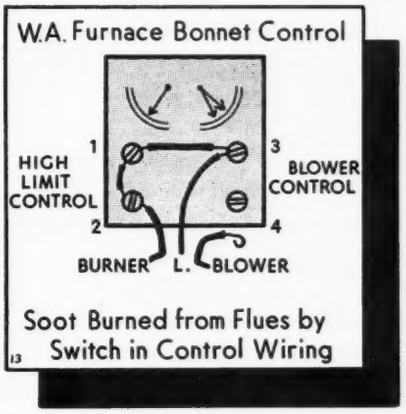
A SERVICE MAN answering a no-heat call on a zero night is welcomed warmly by the chilly home owner or the tenants of the stricken building. He can take time to check over the dead oilburner, but sooner or later he must answer the all-important question, "How soon will the heat be on again?"

On at least 19 out of 20 service calls, ordinary trouble, easily repaired, has stopped the burner. The controls are misbehaving and need a few minutes' attention, the oil strainer or nozzle is plugged, the ignition system parts need cleaning or adjustment, or a low-water control is keeping a steam boiler idle.

It's the unusual trouble, which calls for time-taking repairs or parts the service man hasn't with him and just can't get in the middle of the night, that worries the serviceman when he has to make a statement on how long it will take him to warm up the cold building.

The serviceman often has to fall back on his inventiveness and ingenuity. Applying service steps invented on the job to fit the particular difficulty and equipment may bring heat in ten minutes, whereas relying on standard service procedures may cause a delay of some hours, or even of days until unusual parts can be obtained.

After trying for two hours to tune the gun burner firing a warm air furnace, the serviceman decided his efforts were futile. The furnaces flues were almost tight-plugged with soot. The burner shortcomings which had caused the sooting had been corrected, but until the flue passages of the furnace were cleaned the burner could not be made to run dependably. By then it was 3 A.M. and the serviceman decided to tell the owner there could be no heat until next morning when a vacuum cleaning job could be done on the furnace flues. Because of the construction of the furnace, the flue doors could not be opened for speedy scooping out of some of the soot without the help of a vacuum cleaner. A try at that would wind up with the handsomely finished basement ruined by soot, the serviceman knew, even while it might leave the furnace still too soot-loaded for the burner to run for the night.



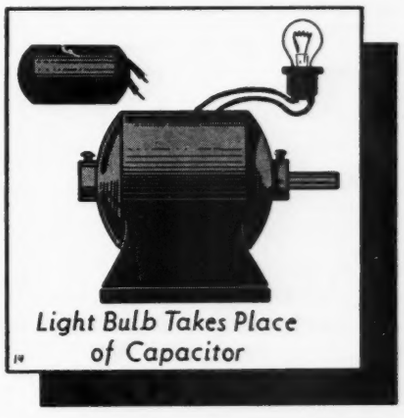
The serviceman's brainstorm, born that night (and used often since), consisted in burning the soot from the flues by running the burner and keeping idle the circulating blower of the furnace unit. After removing the cover of the combination furnace bonnet control, he disconnected the live wire to the circulating blower. Also, he placed a wire jumper across the two terminals of the high limit control to prevent that control from stopping the burner.

"The soot burned out just fine within 15 minutes," reports the serviceman, "even though I was, of course, extremely careful not to raise the heating surfaces of the furnace to a red-heat that might damage them. If you use soot-removal powder and want really good results where the soot is hard to burn—because the stack temperature is down around 350° to 450°—just try this system. It works! But don't ruin a unit by being careless and overheating the furnace metal."

Because this burning-out procedure will damage a furnace if used without proper precautions, a dealer should tell his men to use it only for emergencies. When time permits, do a thorough vacuum cleaning.

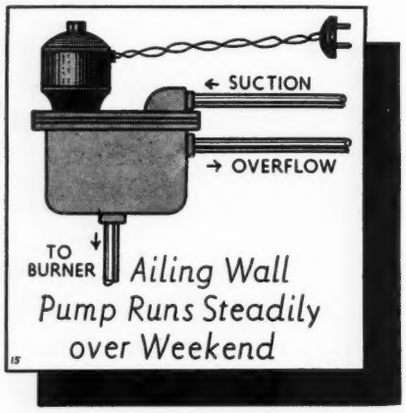
When the capacitor of a capacitor-start, induction-run motor fails and a new capacitor is not at hand but there is urgent need to use the motor, try substituting a resistance for a capacitor. That is the advice of a service expert who uses this emergency repair method regularly for the capacitor motors on hot water circulators. The scheme works only for motors which start under light loads, as the proper capacitor must be used with this type motor to develop its maximum starting torque.

First make certain that the motor trouble involves only a faulty capacitor. Check the starting winding, the running winding, and the centrifugal starting switch to make certain they are in good condition. Then wire a light bulb socket in place of the faulty capacitor, experiment with different size light bulbs of about 50 to 150 watts, and try starting the motor. Put a twin adapter in the light bulb socket if you want to try to use larger bulbs than you have at hand. You get the effect of a 150 watt bulb, for example, by using two 75 watt bulbs in the twin adapter, or by using a 50-watt with a 100 watt bulb. Circulator motors have run for months with light bulbs arranged in this way pinch-hitting for the capacitors which should have been used. But play safe and use the idea only for emergencies; install the proper capacitor as quickly as possible.



A serviceman well acquainted with the in's and out's of wall pumps can use this wrinkle to put an ailing pump to work quickly on an evening or week-

end. If the float switch has caused a breakdown, or the pump works all right once started but is too feeble to start itself dependably, simply run the motor continuously until you can get the needed parts or take the time to repair the unit. Make certain that with the pump motor running continuously the overflow line which goes back to the oil storage tank functions properly. If it



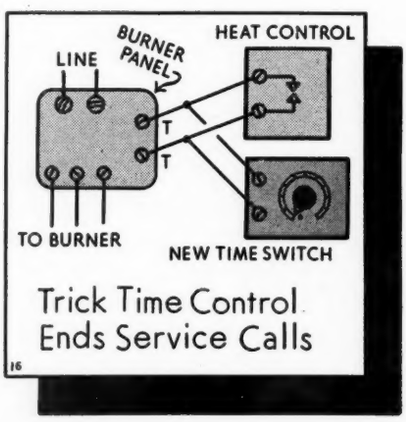
does not, oil will spill out of the unit. This idea can be used with any type of burner equipment, including burners which do not have 110-volt motors or oil valves.

An ailing automatic wall pump supplying oil for a burner which has an on-off 110-volt motor can be turned into a non-automatic pump, when its float switch gives trouble, simply by wiring it to run when the burner operates. Connect the wall pump motor in parallel with the burner motor. The excessive fueloil pumped into the wall pump reservoir must, as with the previous arrangement, find its way safely and dependably back to the oil storage tank through the unit's overflow line.

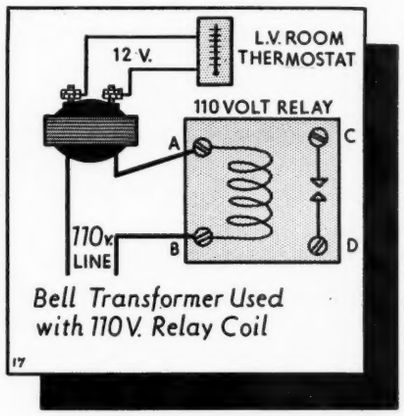
Because it had become old and worn, the wall pump developed the habit of losing its prime when idle. Once started properly, it pumped oil dependably until its next "off" period. By wiring the wall pump motor to an electric outlet in the basement, and running the pump continuously, good heat was provided in the house for the weekend. On Monday morning, the serviceman replaced the weak wall pump.

The first six months after he had installed a new apartment house heat control regulated by outside temperature, a burner dealer received and answered 14 service calls to adjust the control for more or less heat. To gain the fuel savings he had guaranteed, the dealer had locked the new heat control; the building superintendent had been told that he was to call a serviceman if the control seemed to need adjustment. At times, it developed, either the building needed inordinate amounts of heat seemingly for no good reason, or the superintendent enjoyed placing a call for hurry-up service to provide more heat for a complaining tenant. To end these service calls, the dealer installed a trick time control switch. This contains a time clock and a switch which can be set "on" for from five minutes to one hour. At the end of the selected time interval, the switch automatically turns off. It cannot be turned on continuously.

When the switch is turned on, it shunts the thermostat circuits of the burner panel and the heat control, thus in effect arranges for the steam pressure control on the boiler to start and stop the burner for as long a time, up to one hour, as the superintendent desires. The dealer purposely installed the switch at a location extremely inconvenient to the building superintendent. Because this man has to take a long walk to reach the switch and turn it on, he will not turn it on needlessly and waste oil. The dealer reports that the superintendent actually uses the time switch only about once a month, but all service trips have been eliminated by telling the superintendent to use his new time switch.



Don't add such a switch to a large building heat control system without first checking with the manufacturer of the control. Unless you know the heat control system backwards and forwards, you might add the time switch in a way that does not give the desired results. After being forced by such a switch to give extra heat for one hour, certain large building heat control systems will give greatly reduced heat for the hour that follows. The use of a special relay along with the new time switch can prevent this, but working out the proper wiring for this usually is a problem for the control manufacturer. The idea of providing the building superintendent



with an emergency switch, which gives higher than ordinary heat for only a limited time, works out excellently. It saves oil and eliminates chances of the superintendent tinkering with special control adjustments which should be made only by the dealer's serviceman.

A serviceman, stuck on a job because of the need for a low-voltage relay to permit a low-voltage room thermostat to start and stop a 110-volt motor, returned to the shop and found there only a relay with a 110-volt solenoid coil. He installed this, wiring the secondary of a 50-watt bell transformer to the room thermostat as the diagram shows, and wiring the primary of the transformer in series with the 110-volt solenoid coil of the relay. As practically no current passes through the primary coil of the transformer when the secondary circuit is open, but short-circuiting the secondary coil of the transformer causes current to go through the primary coil, the idea works. The equipment was installed permanently. "A" and "B" in the diagram are the terminals of the 110-volt solenoid coil of the relay. "C" and "D" are the terminals of the load-carrying contacts which start and stop the motor.

Certain models of low-pressure burners are piped to receive oil by gravity from inside 275-gallon tanks. About 15 years ago service organizations were baffled when it came to repairing the

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Venting rate is adjustable by means of knob on top of valve. Lets air out fast. Adjustable feature makes balancing of the system easy.

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Full half-inch diameter port vents the steam mains quickly. Will vent 130 feet of 2" main in 30 seconds at only 4 ounces pressure. Handsomely finished. Shank threaded ¾" male and ½" female N.P.T.

When automatic steam heat—oil, gas or stoker—comes on at the call of the thermostat, air must be vented from steam mains and radiators *quickly.*

Large, adjustable venting ports are necessary to obtain rapid and uniform heat in all radiators at the same time.

The "Detroit" Ideal Fast-Venting System for low pressure one-pipe steam—No. 300 Multiport for radiators and No. 861 Hurivent for mains—provides the adjustable fast-venting needed for fast, uniform and economical heat distribution, and does it quietly on the first few ounces of pressure. Eliminates cold radiators.

These large port valves:

1. **Balance the system. The adjustable No. 300 Multiport allows you to speed up the slow heating radiators and get the proper amount of heat from *all* radiators *simultaneously.***
2. **Provide quicker heating. Let the steam out of the boiler into all the radiators at once.**
3. **Vent the radiators more quietly. Vented air is effectively muffled between inner and outer shells of the No. 300.**
4. **Save fuel. Steam reaches radiators at once instead of going to waste in basement, resulting in shorter firing cycles and lower fuel consumption.**
5. **Are sturdily built and will do a real job of fast venting for many years.**
6. **Are available through all plumbing and heating wholesalers.**

Install the Ideal Fast-Venting System on all one-pipe steam jobs. It makes good heating plants better—has cured many sick jobs without expensive changes Write for Bulletin No 166.

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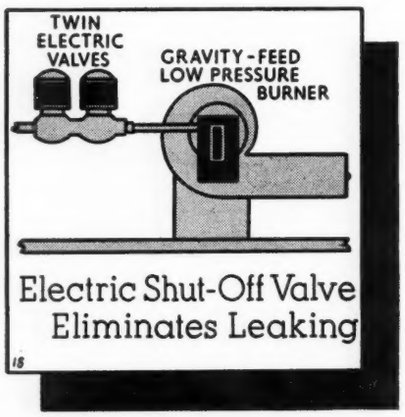
built-in, mechanical type shut-off valves in these burners. Either the servicemen involved were not sufficiently expert and patient to repair the leaky, mechanically-operated shut-off valves, or they did not always have the needed parts at hand. The addition of a 100% practical and dependable electric shut-off valve solved the problem. The valve is

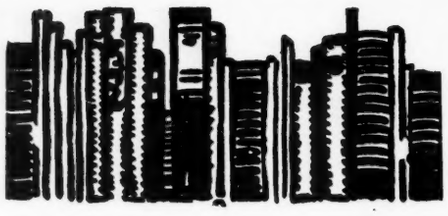


inexpensive, and installing it is quick, simple, and clean-cut. A double valve works out best. The fueloil from the tank should feed through a 100-mesh strainer with considerable strainer area, or through a similarly adequate filter, so that particles which might prevent proper closing of the solenoid valves are removed. The application of electric shut-off valves to certain pump-equipped low-pressure burners, connected to outside tanks, is only slightly more complicated. It serves just as well to end leaky shut-off valve problems once and for all time.

Not only does the use of an inventive and ingenious mind make for better service for burner owners, by ending no-heat periods and minimizing service bills, but also it makes for higher profits in servicing. Many hours of on-the-job and traveling time are saved by the service expert who, facing unusual equipment and unusual trouble, can give a then-and-there permanent, dependable answer to the problem.

◈

Raymond C. Cosgrove, executive vice president, Avco Corp., has been elected president of The Nashville Corp., an Avco subsidiary, and will supervise operations of the Lycoming and Spencer Heater Divisions. Mr. Cosgrove now is operating head of all Avco manufacturing divisions and subsidiaries.



THE BOOK SHELF

Sheet Metal Layouts For Heating Duct Work

TRIANGULATION Short-Cut Layouts, a new book by Joseph J. Kaberlein, has been published as "a textbook and working guide with practical and modern methods for laying out and forming patterns used for blower-exhaust systems, heating and air conditioning." This is Mr. Kaberlein's third book on sheet metal work, completing his coverage of the sheet metal field. The first two books were "Short Cuts for Round Layouts" and "Air Conditioning Metal Layout."

Mr. Kaberlein, an instructor of sheet metal apprentices at the Washburne Trade School, Chicago, has illustrated this book generously to show the student or journeyman every detail of his work. Text is held to a minimum in explaining 151 plates, each of which is a separate project. Problems range from dividing quarter circles to laying out "tapering offset T straight on one side, intersecting cylinder on a tangent."

Both experienced men and beginners in sheet metal work will find this book valuable as a reference, text and training guide.

"Triangulation Short-Cut Layouts" is published by The Bruce Publishing Co., Milwaukee. It is priced at $5.00.

Audel's House Heating Guide Presents Heating Principles

THE WORKING PRINCIPLES of house heating, ventilating and air conditioning are presented in "Audel's House Heating Guide," recently announced. Designed to furnish practical answers to questions on the subject, the book is arranged in three parts, indexed to provide reference to specific portions of the text.

Part I, devoted to house heating, covers all types of wet and dry heating systems, radiators, pipe and fittings, oil-burners and controls, gas burners, radiant and electric heating. This section also discusses installation and service.

Natural and mechanical ventilation, attic fans, fan selection and duct design are covered in Part II, while air conditioning, humidifiers and dehumidifiers, refrigeration, cooling with steam and service problems are discussed in Part III.

The Guide, containing 1,000 pages, 910 illustrations and 57 chapters, measures 5¼ x 6¾ x 2". Published by Theo. Audel & Co., New York 10, N. Y. Price $4.00 each.

Fanning's "Rise of Oil" Book Revised and Reissued

INDUSTRIAL HISTORY seldom has been recorded in a more interesting and readable manner than by Leonard M. Fanning in his book, "The Rise of American Oil." This book, first published in 1936, has been revised and much of it rewritten in the present volume. Seldom, too, has an industry been treated sympathetically with less editorial comment in the text.

The book presents for the layman a factual history of the oil industry from its beginnings—and before—to the present, with special emphasis on the significance of the development to the country and the world.

Industrial development is shown to have moved forward only as fast as petroleum products were made available in quantity. Lubrication by mutton fat and whale oil was adequate for slow turning machinery, but speed was impossible for long periods without a better lubricant which petroleum provided. Power, with the exception of that generated by wind and water, was chiefly animal power until the advent of oil.

Mr. Fanning presents the story of the discovery of oil, the development of the science of discovering and producing oil, refining and transportation without leading the reader into technicalities. Utilization of oil products for transportation, heat and power is covered in some detail.

The secret of the book's readability may be found in Mr. Fanning's admission in the introduction: "If, as the reader pursues this story, he is constantly surprised to find oil so vital a spoke in the wheel which we call progress, he but shares the amazement of the author."

"The Rise of American Oil" by Leonard M. Fanning contains 169 text pages. It is published by Harper & Brothers, New York, at $3.00 per copy.

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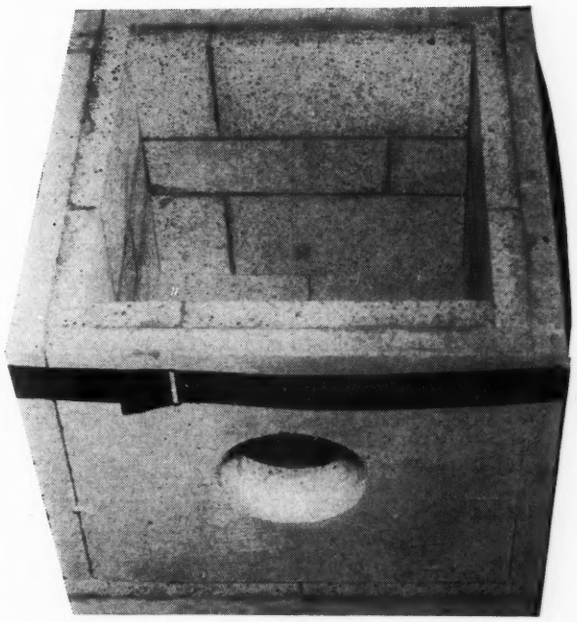
THE GREATEST IMPROVEMENT IN COMBUSTION CHAMBERS SINCE DOMESTIC OIL BURNER HISTORY

QUIGLEY COMBUSTION CHAMBER

Made of the Famous **2,600 Degree** Patented Insulating Insulbrix, Fused on to the equally Famous Quigley Panel. (Patent Pending)

THIS HOT BOX WILL KEEP YOU OUT OF TROUBLE

RANGE FROM 0.75 TO 3.00 G. P. H. SOLICITING ENTIRE OIL HEATING TRADE



FOUR SIZES

WHEN BETTER COMBUSTION CHAMBERS ARE BUILT. QUIGLEY WILL BUILD THEM.

Just think! By the time you can eat a ham sandwich, your insulated Quigley Combustion Chamber is all ready.

17 Features You Cannot Fail To Overlook

- ★ FAST INSTALLATION
- ★ TIME & LABOR SAVINGS
- ★ NO CUTTING
- ★ NO FITTING OF BRICKS
- ★ NO LOSS OF EXPENSIVE BRICK PIECES
- ★ NO WALLS TO CAVE IN
- ★ NO CEMENTING
- ★ NO DIPPING IN WATER
- ★ VERY HIGH FUEL SAVINGS
- ★ QUICK HEATING
- ★ QUIET BURNING
- ★ CLEAN BURNING
- ★ REDUCES PULSATIONS
- ★ REDUCES SERVICE COMPLAINTS
- ★ LIGHT WEIGHT
- ★ TIME TESTED

★ **Flexibility, Quigley Chambers can be quickly set up for narrow chambers as well as longer chambers, also pear shape, simply by rearranging mitered joints.**

Direct All Inquiries To

TRU-HEET COMPANY • **542 MILLER AVENUE TRENTON 10, NEW JERSEY**

SOLE DISTRIBUTORS FOR QUIGLEY COMBUSTION CHAMBERS MANUFACTURED BY QUIGLEY PANEL CONSTRUCTIONS INC.

Gas Man Asks Oil Withheld From Heating Fuel Market

LIQUID PETROLEUM SHOULD give up its present domestic and commercial heating markets, and gradually withdraw in favor of natural gas and coal, R. H. Hargrove told the annual meeting of the American Petroleum Institute at Chicago, November 9. Mr. Hargrove is president of the Texas Eastern Transmission Corp., present owner of the Big and Little Inch pipe lines now transporting natural gas eastward. He said natural gas and coal should divide the additional heating load relinquished by fueloil, and the oil and coal interests should help to secure higher gas rates reflecting the "premium nature" of gas fuel.

The suggestion was made, of course, in the public interest. Mr. Hargrove recognized that his suggestion might appear to be tinged by self-interest, and went on to explain that natural gas could not be transported except by pipe, whereas oil may be vitally needed in time of national emergency. He suggested that oil concentrate on such markets as transportation, military and other uses which are its special sphere. He asks that the oil and coal industries help to secure the additional steel natural gas would need to take over oil's heating market.

A. E. Hess, managing director of Oil Heat Institute, issued a statement following Mr. Hargrove's paper, pointing out that Mr. Hargrove is a past president and a director of the American Gas Association, and implying that the suggestion was made "to get a bigger volume for his own product." The Hess statement also cited a survey by Small Homes Guide which showed that 54.6% of Americans want oil for heating their homes, against 38.7% for gas, and asked "how far can a man go against public interest in selling his product?"

This is another example to show why the oilheating industry needs professional counsel for continuing public relations activities.

After suggesting that the entire heating market be turned over to natural gas and coal, Mr. Hargrove said, "Coal would do better to turn its efforts to research and technological improvements."

Conspicuously lacking from Mr. Hargrove's paper was any suggestion as to how such a fuel revolution might be accomplished. Oil companies are notoriously afraid of agreements on any phase of marketing, and it is not clear how they could be fitted legally into the fuel cartel which would divide up the domestic and commercial heating market among its members, agree on relative prices, make gas attractive, and tell the public which fuel it can have and how much.

Further, Mr. Hargrove does not suggest how a thriving petroleum industry, capable of meeting a peak military demand for oil, can be maintained without sufficient volume to maintain its refineries and transportation system which would be essential in time of national emergency. It has been found uneconomical to maintain a large idle plant capacity in peace time. Equipment for producing, refining and transporting wartime oil is much more intricate and subject to obsolescence than mechanical plants. It might be pointed out that Mr. Hargrove's "Inch" lines are to be returned to the government in times of national emergency, and though other lines are built on the right-of-way the loss of so much pipeline capacity would make it impossible to supply any greatly expanded gas heating market.

Texas Concerned

A month before Mr. Hargrove's plea, Olin Culberson of the Texas Railroad Commission which regulates gas and oil production in the state, told a meeting of the Interstate Oil Compact Commission that 45% of the natural gas used in the country comes from Texas, and by the present "most optimistic" estimates of reserves, the state's fields have a life expectancy of 43 years, which is being reduced by additional pipeline permits issued by the Federal Power Commission. It is assumed that the volume of gas available will decrease gradually. Though Mr. Culberson did not contend that Texas should refuse to share its gas with the rest of the country, he said he firmly believed "that to deplete this great natural resource with its resulting impact on our local economy would work a great injustice on Texas prosperity."

Writing in the *New York Journal of Commerce* just before the API meeting, Col. T. H. Barton, Chairman of the Board of the Lion Oil Company, warned that most legislation in the past aimed at controlling the law of supply and demand has proved futile, and that present talk of legislation to prevent oil from being "wasted" for heating purposes is just another byway on the road to hasty legislation. Such action would upset the balance between the many and varied products from a single barrel of crude oil, Col. Barton said.

◈

Farm Survey Shows Oilheating Favored

A LITTLE MORE than one-sixteenth of all farm families in six Midwestern states planned to install inheating, either central or space heating, during this year, according to surveys released by "Prairie Farmer" of Chicago and a group of four affiliated farm journals. Whether or not these intentions were fully carried out cannot be known, but they are particularly significant in again demonstrating to oilheating men that farms are logical prospects. Divided by fuels preferred, farm buying intentions for the year are as follows:

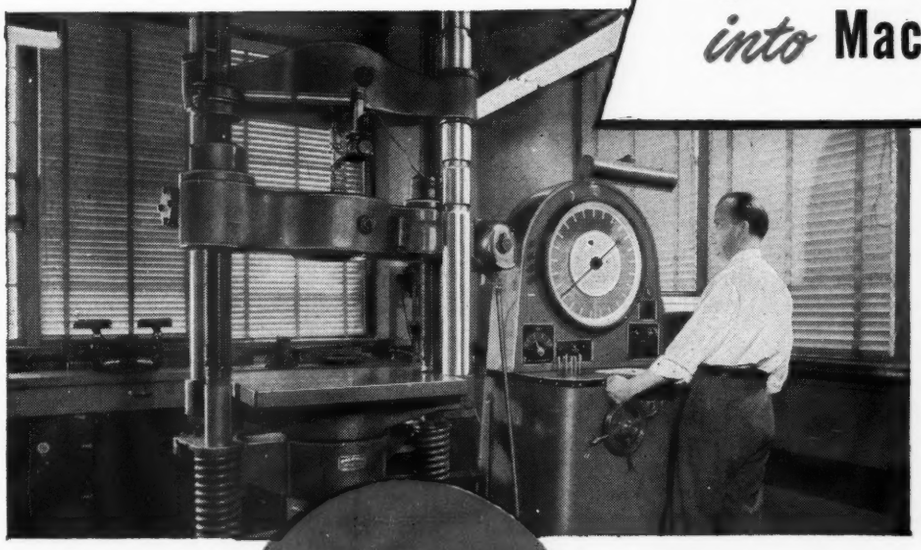
	SPACE HEATERS		
	Oil	*Gas*	*Coal*
Minnesota	6,993	..	3,402
Dakotas	17,664	3,864	3,312
Nebraska	8,605	3,911	5,923
Wisconsin	10,487	..	4,444
Illinois-Indiana	19,010	760	9,505
Totals	62,759	8,535	26,586

CENTRAL HEATING PLANTS			
Oil	*Gas*	*Coal*	*Stoker*
18,900	945	6,993	1,701
15,042	6,486	10,488	1,932
5,923	5,253	1,341	1,341
13,331	711	4,444	1,422
14,068	5,323	17,109	11,786
67,264	18,718	40,375	18,182

Satisfaction with Mack trucks is an old story for H. M. Lund Coal Co., Lincolnwood, Ill. They've been buying Macks since way back in 1921. One of their latest purchases is this Mono-Shift equipped, cab-over-engine Mack which mounts a 3100-gallon fuel oil tank.

You get more work *out* of Mack Trucks

because...we put more work *into* Macks



Superior performance of Mack trucks is the result of uncompromising quality standards of materials, workmanship and engineering. These standards are safe-guarded by the most exhaustive research, testing and inspection in the truck industry. This massive test unit, for example, is used in Mack's research laboratory to determine tensile, compression and deflection strength of materials.

Mack trucks for **every purpose**

6588

SINCE 1900, AMERICA'S HARDEST WORKING TRUCK

Mack Trucks, Inc., Empire State Building, New York 1, New York. Factories at Allentown, Pa.; Plainfield, N. J.; New Brunswick, N. J.; Long Island City, N. Y. Factory branches and dealers in all principal cities for service and parts. In Canada: Mack Trucks of Canada, Ltd.

fueloil & oil heat

Wider Industrial Uses Forecast at H & V Show

APPLICATIONS OF HEATING, ventilating and air conditioning to industrial purposes are steadily increasing, as manufacturing requirements become more exacting, and many advances in specific equipment for such uses will be featured at the 9th International Heating and Ventilating Exposition. The exposition, which is sponsored by the American Society of Heating and Ventilating Engineers, will be held at the International Amphitheater, in Chicago, January 24 to 28, in conjunction with the 55th annual meeting of the Society.

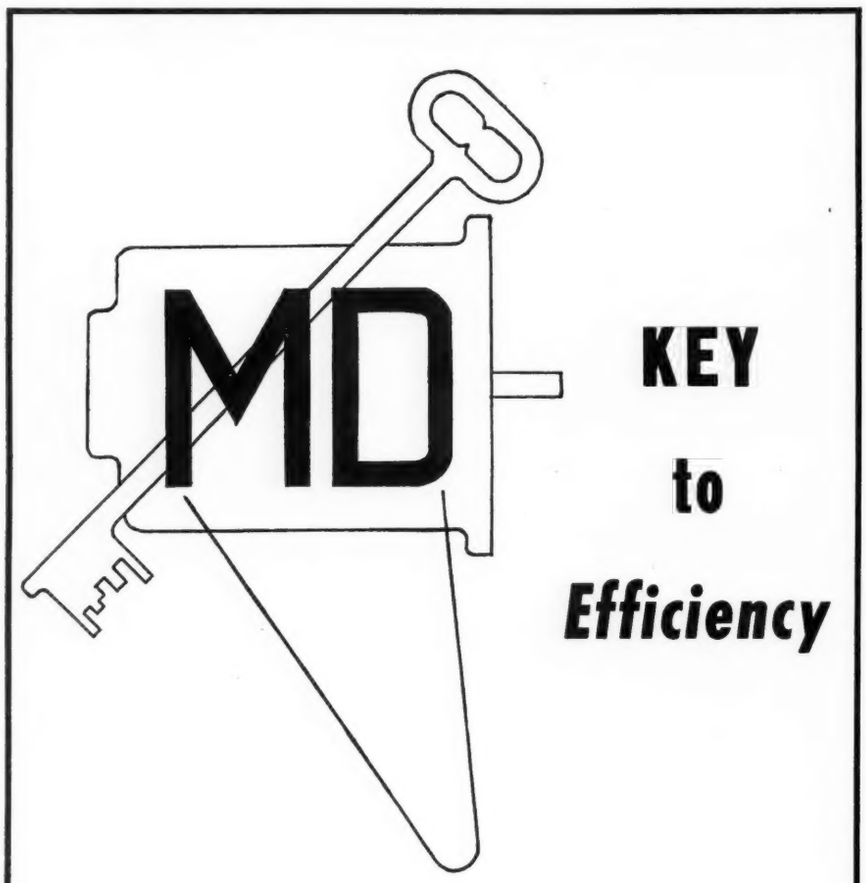
Among novel uses of direct-fired space heaters manufactured by one exhibitor at the forthcoming exposition are the defrosting of Diesel locomotive trucks in Winter, tempering make-up air in a plant where paint spray and testing operations require a heavy exhaust of noxious fumes, and in a third plant, heat for curing tempered air for drying, warm air for comfort heating and ventilation of the whole plant during the Summer. Another exhibitor of equipment for recirculation and make-up air in industrial plants will display equipment delivering 73,000 to over 2,000,000 btu per hour.

There have been many recent improvements in air handling equipment, such as the provision of adjustable blade pitch in industrial propeller fan design, while the range of types and sizes offered by manufacturers specializing in that line is comprehensive. For instance, a single exhibit registered for the exposition will display a range of fan sizes from 12 inches to 48 inches diameter, incorporating adjustable panel window fans in three sizes, attic fans in four sizes, portable fans in three sizes and in addition a new special all-purpose 24-inch fan suitable for use either as an attic ventilator or window in the new small housing projects. At another booth a new type of kitchen fan will be shown that has been designed to operate at a minimum noise level, and also incorporating a grease trap to prevent wall discoloration.

Air purification by various means, notably by filtration, continues to engage the attention of equipment manufacturers and will account for a number of important displays, especially those covering institutional and domestic applications. One of the most comprehensive displays in this line will include eleven different types of dry filtering media, together with an assortment of frames in which these materials may be used; two designs of filters in which mechanical filtration and electric precipitation are combined. There will be at least one new washable air filter on view at the exposition, while a manufacturer of electric air filters for residential, commercial and industrial applications will show new models for the first time, demonstrating by means of scale models, the principles of electrostatic precipitation.

For many uses the treatment of air by filtration through activated carbon affords health protection, in addition to comfort. An exhibition of this method will prove interesting to many visitors.

Air cooling systems will be exhibited in many forms, ranging upwards from a newly designed room cooler of distinctive design, that will be shown for the first time. Considerable attention will be drawn by a roof cooling system, which



Greater energy with less effort shows efficiency. Less weight to handle, less trouble to service means more money for you.

MD motors are lighter than all others—ruggedly cast aluminum frame and covers save pounds.

MD motors are closed against dirt and interference—but dissipate harmful internal heat rapidly.

MD motors incorporating modern features as well as all NEMA and Underwriters requirements can be your key to efficiency.

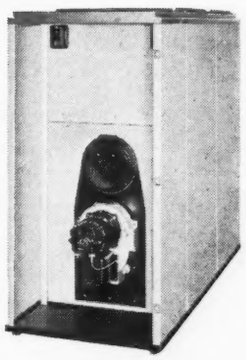
ELECTRIC MOTOR DEVELOPMENT CO.
WICKLIFFE, OHIO

Luxaire 1st. again

with a NEW Plate-Mounted OIL BURNER

OUTSTANDING IN Installation... Servicing Features

Burner Chassis being placed on 4 Positioning Studs.



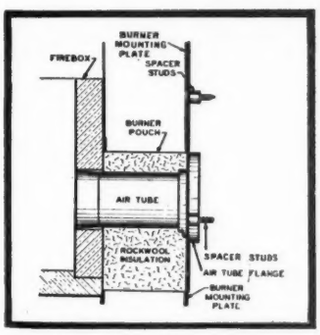
A complete Burner Installation.

Here's the greatest advancement in oil burners ever offered to the heating trade.

An oil burner that has fool-proof installation and service features.

An oil burner that is always installed in correct position.

Install the firebox and air tube in the combustion chamber—attach the burner mounting plate to front of the unit—pick up the burner chassis and place it on the 4 spacer studs on the burner mounting plate—securely tighten 4 nuts and the burner is mounted into place.



Firebox—Air Tube and Burner Mounting Plate Installation

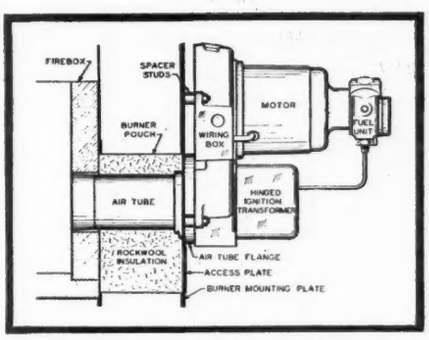


Diagram of the complete Installation

Furthermore, in servicing or inspecting, the entire burner chassis can be removed from the burner mounting plate, without in anyway disturbing the air tube or firebox. After servicing, the burner chassis goes back in the identical same position—back on the same positioning studs on the burner mounting plate—quickly, easily, securely.

Send for literature and name of nearest Luxaire Jobber.

THE C·A·OLSEN MANUFACTURING COMPANY

Luxaire HEATING & AIR CONDITIONING UNITS

ELYRIA 12, OHIO

has been improved by the adoption of a new type of self-cleaning sprinkler head.

Many new features will be exhibited in the line of boilers and furnaces, including one new design which is said to be the first to be completely die stamped and mass produced along the lines of automotive equipment. Included among the many exhibits of burners will be one replacement unit which by a simple adaptation can be adjusted to fire from three-fourths to 4.5 gallons of oil per hour.

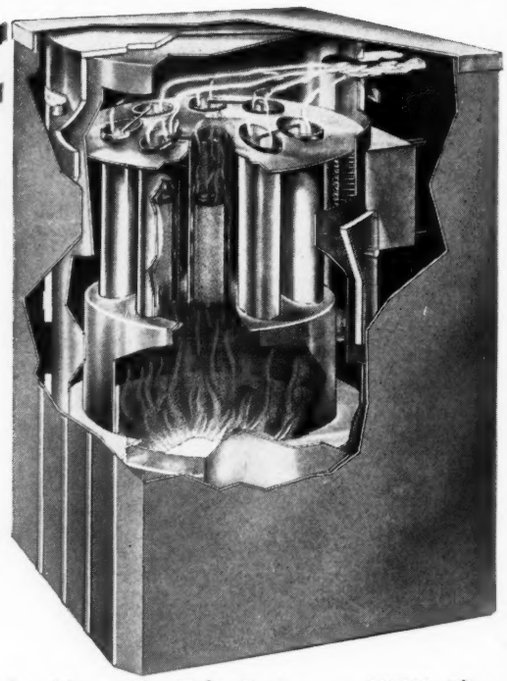
A number of exhibitors are pressing forward in floor and panel heating, with radiant baseboards strongly favored for convenient application. One terms this "the most significant post-war development for the heating of individual homes." Another, introducing a newly designed front outlet grille, claims to have over 5,000 installations in the Chicago area. A third will exhibit this new method of heat distribution by means of a display in which a living room and powder room are simulated. Nor will interested visitors overlook the radiant heating pyrometer, which one of the instrument manufacturers has brought out, or the out-door, in-door temperature regulator offered by a manufacturer of controls.

Like previous expositions of its kind, the 9th International Heating & Ventilating Exposition in Chicago will be open only to invited and registered visitors, excluding the general public.

New Sales-Making Features!

ACME DUAL "8"

High Efficiency BOILER - BURNER UNIT



NEW **Engineered Stainless Steel Intensifier Tube Design . . . *NEW* utilization of gases, which commonly escape in chimney heat . . . *NEW* uniformity of heat throughout full length of tubes . . . *NEW* high speed in heating . . . *NEW* low in fuel consumption. The ideal combination for the organization that seeks practical new features and sales-making talking points.**

Beautiful streamlined green cabinet with chrome trim; top covers easily removed; tankless water heater; removable type, 240 G.P.H. Hi-pressure boiler flues; blanket rockwool insulation. Pre-cast combustion chamber. All accessories conveniently located.

WRITE FOR INFORMATION ON EXCLUSIVE TERRITORIES

A few desirable territories are still open to organizations familiar with oil heat selling. Complete literature will be forwarded on request.

ACME TANK AND WELDING

Div. the United Tool & Die Company

1031 New Britain Avenue

Elmwood (Hartford), Conn.

New Low Cost Process For Manufacturing Gas

A REVOLUTIONARY NEW process for making manufactured gas of a heat content equivalent to natural gas, entirely from low cost oil, has been announced by the American Gas Association.

Through the use of cheaper grades of oil as the sole gas-making fuel, the new process, the result of two years' effort under the A.G.A. Gas Production Research program, makes possible a reduction of 30 percent or more in the cost of gas making materials and an increase in thermal capacity of approximately 35 percent in existing apparatus. Production of manufactured gas with a heat content of 1,000 BTU's under the new process by manufactured gas companies, not only would effect considerable reduction in the cost of producing gas, but also would nearly double the present distribution capacity of these companies and postpone or eliminate the need for further investment in distribution facilities.

The new process has been in regular operation during the past year at the Spring Gardens plant of the Consolidated Gas Electric Light & Power Company of Baltimore, where a wide range of oils up to those having 13 percent residual carbon content have been successfully employed with substantial increases in plant capacity as well as considerable operating economy.

Using converted units of former water gas sets, the Baltimore Company was able to produce about 6,000,000 cubic feet of 1,000 Btu gas per day from a single converted unit using premium oil costing about 12 cents per gallon. Using a lower grade Bunker C oil costing about 6½ cents per gallon, the same unit produced approximately 5,000,000 cubic feet a day. The economy effected by using the lower cost and heavier oils is thus apparent.

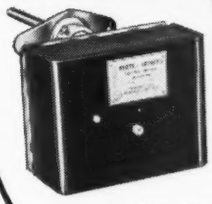
NOW! WHITE-RODGERS 2-PIECE *Oil Burner* PRIMARY CONTROL

with STAINLESS-STEEL THERMAL ELEMENT

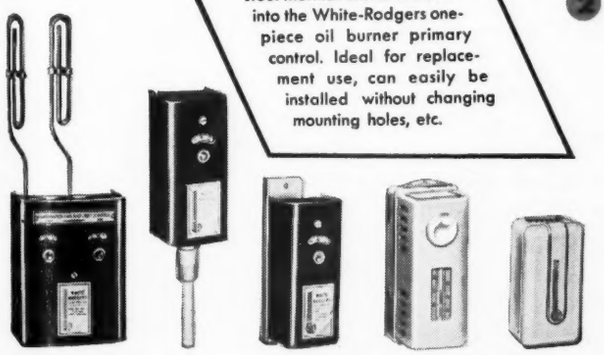
...brings you these benefits

1. **Easier, quicker installation**
2. **Neater-looking jobs**
3. **Longer, more dependable life**

Years in development, more years in actual field test, White-Rodgers now announces its new primary control designed specifically to eliminate those troubles common to oil-burner operation:



ONE-PIECE CONTROLS
The same unusual stainless-steel thermal element is built into the White-Rodgers one-piece oil burner primary control. Ideal for replacement use, can easily be installed without changing mounting holes, etc.



1. Because the stainless-steel element of the combustion switch can be mounted in the firebox and does not need to be mounted in the stack, all wiring can be done at the factory. Line and thermostat connections are all that are needed in installation.
2. Because wiring is hidden in the furnace or boiler casing with this and the other controls required, the entire installation is neater and better looking.
3. Because stainless steel (the only metal exposed to the corrosive gases in the firebox) is not affected by corrosion, and its operation is not affected by soot formation, the operation of the oil burner is more dependable and its life is extended.

EVERY CONTROL NEEDED FOR OIL HEATING. WARM-AIR, HOT-WATER, STEAM OR VAPOR SYSTEMS

WHITE-RODGERS
WR *Controls* FOR REFRIGERATION HEATING AND AIR CONDITIONING
ST. LOUIS 6, MO.

McCollum Reporting to API Sees Abundant Supply

AN AMERICAN PETROLEUM Institute Committee reported November 11 that "substantially increased amounts of petroleum liquids from natural sources will be available within the United States during the next few years."

The report was made by L. F. McCollum, president of Continental Oil Co., Ponca City, Okla., and chairman of the API Committee on Long-Term Petroleum Availability, which made an exhaustive study of all of the nation's petroleum resources. It was made before the concluding general session of the API's 28th Annual Meeting.

The McCollum committee report, which forecasts the 1949-1953 outlook in specific per-barrel figures and which paints an optimistic picture of increased supplies, marked the first time such a prediction has been made by an American Petroleum Institute committee.

McCollum, in an accompanying speech which was based upon the facts revealed in the committee report, said:

"This forecast assumes that there will be favorable economic conditions; that adequate materials will be available to carry on the industry's contemplated operations; that there will be no serious interruptions in activities in the event of war; and that there will be no government regulation of, or restrictions upon, the industry's normal activities.

"There are abundant sources of raw materials within the United States from which petroleum products can be produced synthetically to supply all needs if it becomes necessary or advisable to produce them by this method. In short, this nation can continue to grow through the use of petroleum products as a major source of energy.

"By 1953, the availability of natural petroleum produced in the United States is estimated to reach an upper range of 7,300,000 barrels a day. That figure would be 2,300,000 barrels a day more than actual production in the peak war year of 1945. And, related to population, the availability for all of 1953 would be equal to almost 800 gallons for each person—about 80 per cent higher than it was in 1941.

"It is still impossible to foresee definitely the probable trends beyond 1953. From the best data now obtainable, no significant decline from that year's estimated rates is anticipated during the following five years.

"However, if a moderate decline in domestic output should be indicated later on, supplementary sources of petroleum and its products are expected to become available in larger volumes if, and when, needed. One of those supplementary sources is made up of our large reserves of natural gas, oil shale, and coal which can be synthesized into liquid fuels."

Blasting the periodic rumors that the United States is "running out of oil," McCollum pointed out that the petroleum industry in this country will this year produce 48 per cent more oil than it did in the prewar year of 1941, and 21 per cent more than in the peak war year of 1945.

◈

New Home Estimate 800,000 for Year 1948

ACCORDING TO estimates by the Bureau of Labor Statistics, total new dwelling units started during 1948 will be close to 940,000. About 85% of these, or 800,000, will be residences, the balance apartment units, in the opinion of an official of the Housing and Home Finance Agency.

For 1949, the estimate of total dwelling units is something under 900,000 which would mean around 760,000 residences. The prediction of a slight decline below 1948 levels is based on recognition of a tighter mortgage market and the fact that the "desperation" demand for housing has somewhat abated.

◈

Conservation Ad Series by Griffin Fuel, Seattle

EMPHASIZING THE theme of cost saving on fuels, Fred Griffin, Griffin Fuel Co., Seattle, is currently running half page advertisements in local newspapers, headed "8 Ways to Save on Fuel Costs." Because the company sells both fueloil and coal, the copy is directed to heating economies applicable to either fuel.

The particular points contain little that is new, but the significance of this advertising is that it is not tied to fuel shortages, as was so much of this type advertising last season, but rather to dollar savings, now that shortages are past but fuel costs are still decidedly, if not unreasonably, high.

◈

Smaller Refiners Grow Faster Than Large Ones

THE "LITTLE FELLOWS" in the oil industry are growing faster than the big ones, according to Dr. Joseph E. Pogue, Vice President of The Chase National Bank.

A comparison of the net worth of thirty leading oil companies, made by the Petroleum Department of The Chase National Bank, shows that thirteen companies, with net worth of less than $100,000,000 each, increased their net worth on the average by about 63 percent in the seven years from December 31, 1940, to December 31, 1947. Many smaller companies increased their net worth even more.

The eleven companies of intermediate size, with net worth ranging from $100,000,000 to $500,000,000 grew slightly less than 46 percent over the same period. The six largest of the thirty companies, with net worth of more than a half billion dollars each, grew only 44 percent.

The smaller companies in the group also had higher percentage earnings.

◈

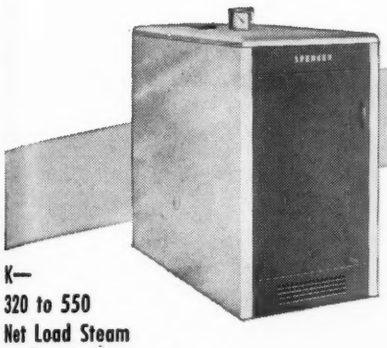
Slight Drop In Gas Available For Heating

IN ABOUT TWO-THIRDS of gas burning cities it is still not possible to get fuel for a new central heating installation. In a recent survey by the magazine "Gas," covering utility companies throughout the country, 64% are prohibiting central heating connections for new homes and 68% prohibit them for old homes. A year ago the same 64% were refusing new home business while only 65% were turning down old home installations.

These percentages do not actually refer to the specific number of gas companies, but rather to the number of total meters served by the companies . . . in other words percentages are weighted for size of the company, so that the figures convey quantity of gas or number of customers, as they should.

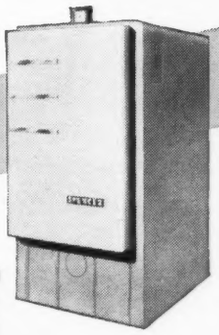
THERE IS A SIZE AND TYPE SPENCER

For Every Heating Need... For Every Type Fuel...



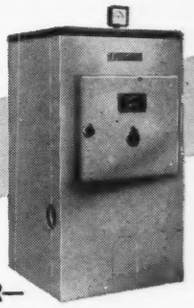
K—
320 to 550
Net Load Steam

A standout in the Spencer line—compact steel fire tube boiler for the small home . . . easy to install with any type oil burner or stoker—quickly converted to hand-fired operation.



C—
700 to 3000
Net Load Steam

The quality steel boiler for larger homes and small commercial buildings. There are many features to this boiler that aid builder, heating contractor and home owner. Easily converted to any type firing.



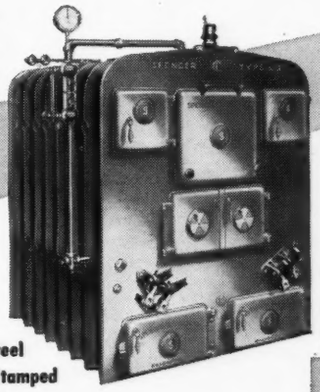
Series A, C, K & R

SBI Reg. U. S. Pat. Off.

FULLY APPROVED

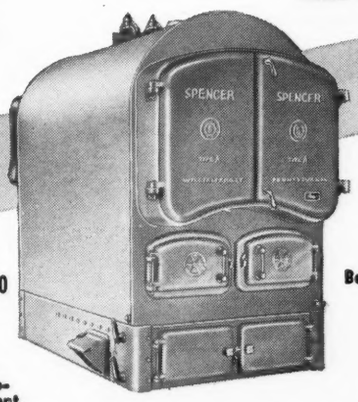
R—
320 to 700
Net Load Steam

An all-steel boiler designed especially for automatic firing—includes many features of the larger series boilers.



L 3—
1430 to 4510
EDR Steam

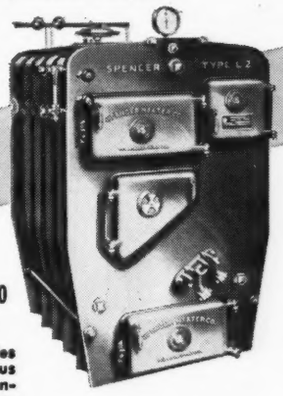
The most economical automatic heat known. Designed for burning small size anthracite fuel. Especially suited for churches, schools and apartment buildings.



A—
1800 to 42,500
EDR Steam

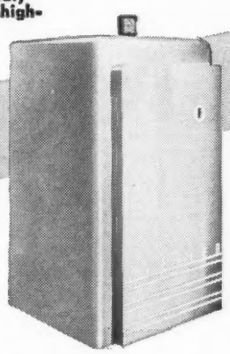
An example of outstanding achievement in the low pressure commercial boiler field. Especially noted as an efficient, quick-steaming unit. Ruggedly constructed throughout of high-quality materials.

All A, C, K & R Steel Boilers Inspected and Stamped By Insurance Inspector



L 2—
690 to 1570
EDR Steam

Another series of the famous line of Spencer's magazine-feed boilers to meet the capacity requirements of the larger homes and small commercial buildings. Always operates at greatest efficiency.

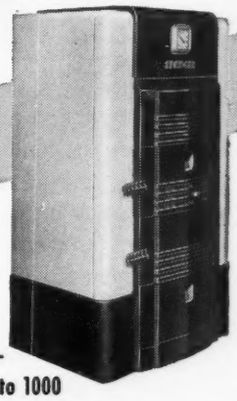


F—
290 to 740
EDR Steam

Brings the advantage of automatic heat with solid fuel to the small home. Provides safe, trouble-free, economical performance with long periods between firings.

I-B-R

AP FULLY APPROVED



AP—
340 to 1000
Net Steam Ratings

Burns any type of fuel—easily and quickly converted. Year-round service hot water. Attractive jacket . . . modern design door assembly featuring glass observation ports.

Quality of Material and Workmanship

Modern heating specialists are aware of advantages Spencer Boilers offer. No trouble calls—easy to install—Spencer dealers keep their profit . . . make more money. Since 1888 Spencer has made the quality boilers.

ASME

All Spencer Steel and Cast Iron Boilers Built In Accordance With SBI Code & Carry Code Seal

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SPENCER HEATER

DIVISION—AVCO MANUFACTURING CORP., DEPT. FF-6, WILLIAMSPORT 2, PA.

fueloil & oil heat

Servicing A Thermostat

WORKING PROPERLY, a room thermostat is the boss of the amount of heat in the house. When the owner wants about 70° where the thermostat is located, he should get it by setting the thermostat for that temperature. The room temperature may hover between 71° and 73°, and at times for good reason it may vary even more. The thermostat is ailing if, when set for 70°, it causes a reliable thermometer located close to it to read 75° to 80° or 60° to 65°.

fueloil & oil heat Short Short Article on Burner Service

Diag. 2, schematic only and thus not showing any actual thermostat, indicates a popular type of thermostat which employs a dedent magnet to cause the contacts to open and close with snap action. With the contacts open and tending to close because the temperature is dropping, they will snap together when the gap between them shortens to a certain minimum distance. Next, on a temperature rise tension first develops in the bi-metal strip, then the contacts snap open. Because of the tug of the stationary magnet on an armature which is a piece of iron or steel fastened to the bi-metal strip, a relay connected to this thermostat clicks in or out without chattering when the thermostat circuit makes or breaks. A thermostat with contacts of sufficient capacity and with sufficient dedent magnet power can start a motor.

In Diag. 2, the bi-metal strip pivots at "P." Spring "S" causes the upper right-hand leg of the bi-metal "U" strip to remain at all times in contact with the screw (or cam in some models) to which the dial is fastened. Turning the dial opens and closes the contacts.

The thermostat in Diag. 2 would be calibrated by loosening the little set screw which locks the dial on the large screw. Without moving the large screw or bi-metal strip, the dial could be set lower or higher and then locked again by the little set screw. The thermostat would work at the same temperature as it did before, but the dial reading would be different.

To check thermostat calibration:

A. Hang a reliable thermometer on the thermostat, wait half an hour, then read the thermometer.

B. Set the thermostat at the temperature indicated by the thermometer.

C. Check the contacts with the main switch off. Take great care to avoid raising the temperature of the thermostat with your hands or breath. With proper calibration, the contact points will stay open if you open them, and stay closed if you close them. To try them, move them gently with a long, slim screwdriver.

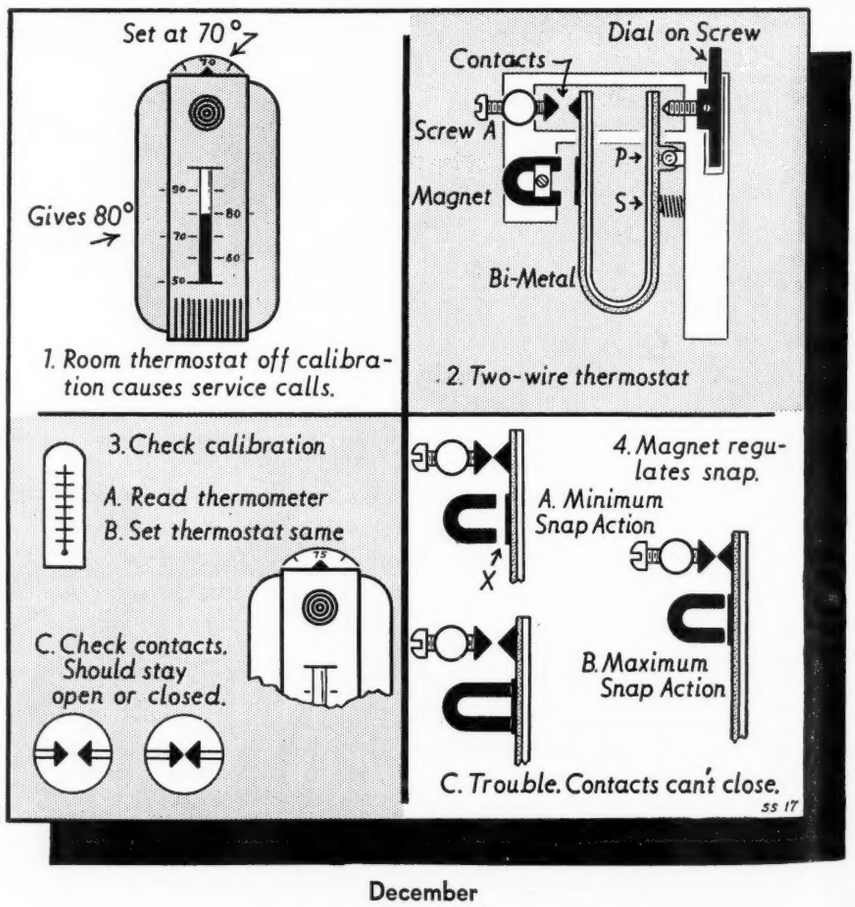
To get the idea, consider the room temperature 75° and the thermostat set for 75°. If closed (heat on) the contacts would open on a slight temperature rise; at perhaps 76° they would open. If open (heat off) a similarly slight drop in room temperature would cause the contacts to close and start the heat.

Diag. 4 shows how, with the contacts closed, the gap between the magnet and its armature regulates the amount of snap action of the thermostat. Sketch "A" shows a relatively large gap at "X," between the magnet and the armature. The armature is never very close to the magnet, and the contact points cannot be locked together strongly by the magnet. The device controlled by the thermostat will have short, frequent "on" periods. The heat will be very smooth.

In sketch "B," maximum snap action results from having the magnet as close to its armature as possible without preventing proper closing of the contacts.

Sketch "C" shows improper adjustment. The armature is in contact with the magnet but the contacts are not closed.

In Diag. 2, the dial would have to be moved on its screw to regulate the calibration of the thermostat, and to regulate the differential or sensitivity the magnet would have to be moved. Adjusting the screw marked "A" in Diag. 2 would change the differential considerably and the calibration slightly. Apply this type of reasoning in studying any two-wire thermostat which has a dedent magnet. Don't fail to get complete instructions from the manufacturer on adjusting and servicing any thermostat you do not understand fully.



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Provides Lower Cost Automatic Oil Heat
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THE SENSATIONAL NEW SILENT GLOW MODEL 600 Air Seel
SILENT GLOW OIL BURNERS

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the burner . . . Already hailed as the "oil burner of the hour" the new '600' Air-Seel squarely meets the requirements in the small home market. Here is the oil burner that enables you to meet the challenge of continually mounting buyer resistance resulting from soaring prices and much-talked of fuel shortages. It has time-tested features never before offered at such an exceptionally low price. It is the oil burner you can sell TODAY to American home owners who are eager for the comfort and convenience of oil heat *but at a price they can afford to pay.*

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fuel oil & oil heat

Reader's Problems

Q. Page 84 of your November issue outlines use of a wall pump where one burner draws oil from two outside tanks at different levels. We are trying it but having trouble because, located above both tanks and spilling its oil into the higher of the two tanks, the wall pump drains its reservoir and goes off on its safety device, then requires manual restarting. What do we do to overcome that? Please show a diagram of proper oil piping of the entire two-tank layout?

O.S.C., Bronx, N. Y.

A. In Diag. 1, the burner connects to the original tank by suction line "S" and return line "R." The burner is not connected to the new tank, which is lower than the original tank. Located in the basement and with the bottom of its reservoir higher than the top of the original outside tank, the wall pump transfers oil from the lower tank to the higher tank. "A" is the suction line for the wall pump. "B" is the line through which oil flows from the wall pump reservoir to the higher tank. If the burner return line ("R") is large enough, connect the wall pump reservoir to it so that the returned oil from the burner and the oil given to the upper tank by the wall pump will flow to the upper tank through the same line.

To end the trouble you are having, install a needle valve close to the wall pump reservoir in the line to the upper tank, then close down on this valve until oil flows out of the reservoir more slowly than the wall pump lifts oil from the lower tank. Wired in parallel with the burner motor, the wall pump should start and stop on its float control when the burner runs. Adjust the needle valve properly for this.

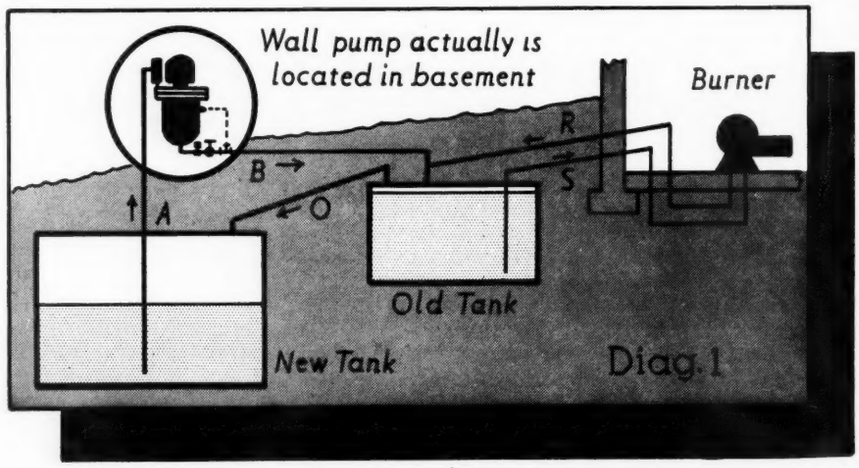
Next to the needle valve install a solenoid oil valve, wired in parallel with the burner motor to be open only when the burner runs. This will prevent the reservoir of the wall pump from going dry when the burner motor and wall pump motor are idle. The dotted line in Diag. 1, coming from the overflow connection of the wall pump and shunting both the solenoid valve and needle valve, is for safety only. If the float switch of the wall pump stayed closed because of a defect, and therefore oil was pumped into the reservoir continuously (while the burner ran) at a higher rate than oil flowed out through the needle valve, the spill-over oil from the reservoir of the wall pump would find its way safely to the upper tank through the pipe shown as a dotted line.

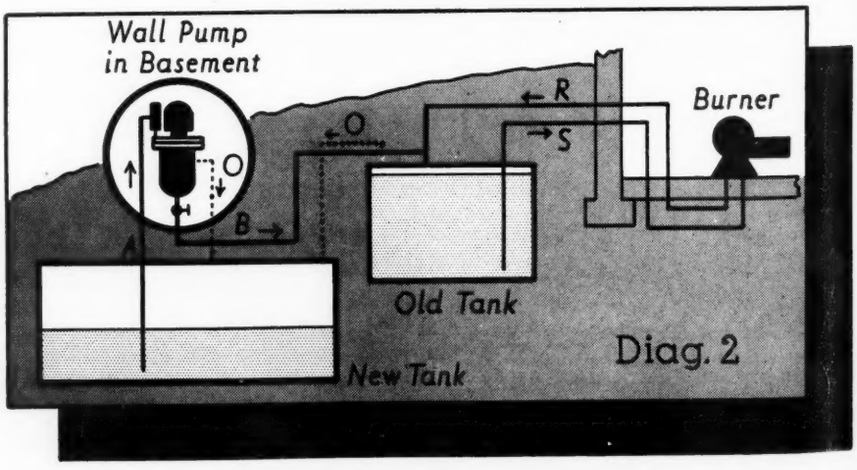
An overflow line connecting the tops of both tanks is shown as "O."

Have the fill cap of the new tank as high as the fill cap of the old tank, running it to the foundation of the house if necessary. Provide a separate vent line for each tank; have the vent caps at the same level.

As oil is used after both tanks have been filled, the wall pump will transfer oil to the upper tank when the burner runs. The upper tank will be kept full of oil. The lower tank will become empty and, obtaining no more oil from it, the wall pump will stop automatically. When oil is delivered, fill both tanks and use the re-set device of the automatic wall pump.

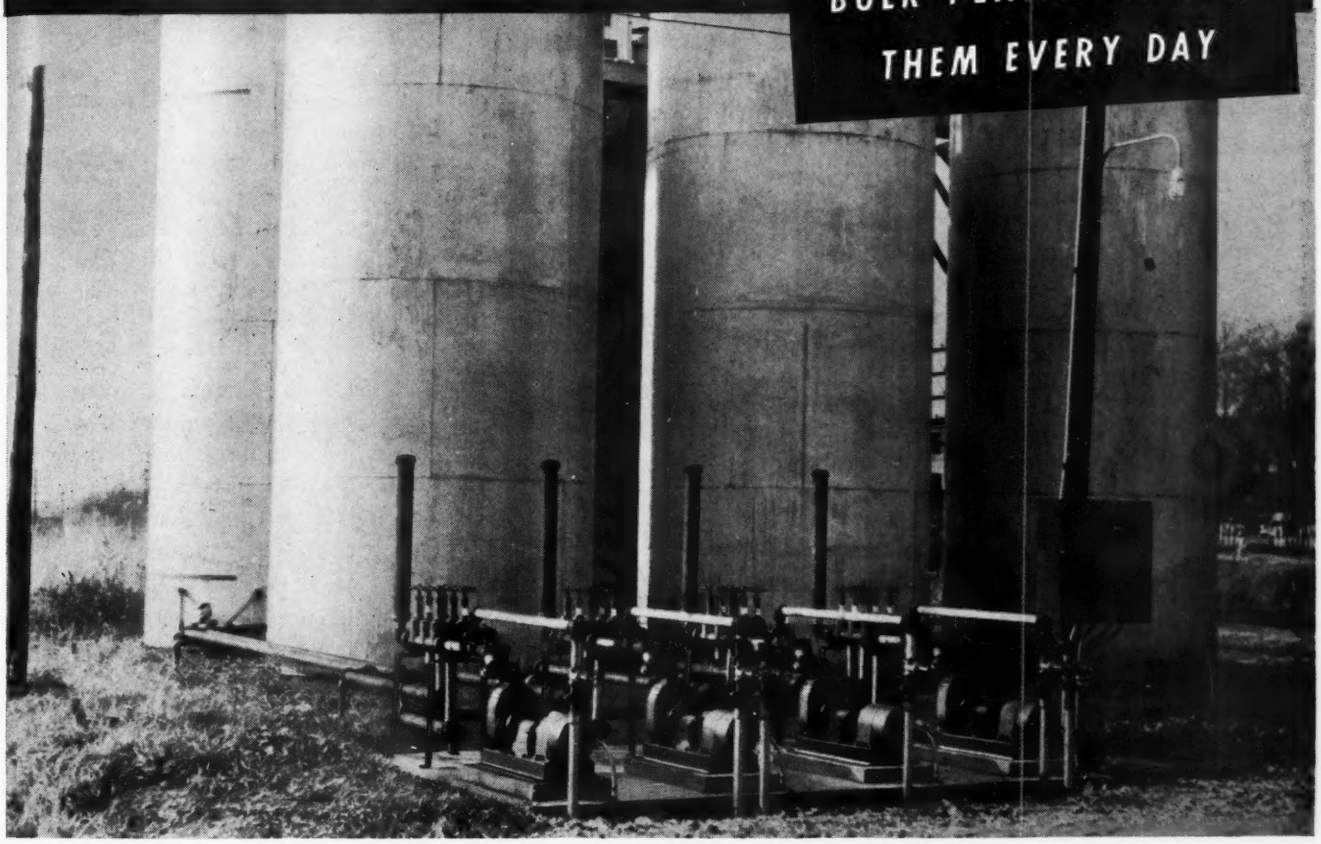
Diag. 2 is similar except that in this case the wall pump can be installed at such a height in the basement that the level of oil in its reservoir is a few inches above the top of the higher tank. All of line "B" is below the level of oil in the reservoir, so that oil will flow from the wall pump to the old tank, but line "O" is so high above the old tank that the wall pump motor will be stopped by its float control before oil spills over from the old tank to the lower, new tank. There is no need to use a solenoid valve and needle valve, since the wall pump in this case automatically maintains a level of oil a few inches above the top of the higher tank, taking oil from the lower tank automatically only when this oil level drops because the burner takes oil from the upper tank. Line "B" stays full of oil, but the oil level does not reach to the high point of line "O," connected to the upper tank. The safety





MARLOW PUMPS DO MORE...

THAT'S WHY MORE BULK PLANTS CHOOSE THEM EVERY DAY



USES: **1. Filling above-ground storage tanks with gasoline, kerosene and fuel oil by pumping from over the top of tank cars and from transports. 2. Delivering from storage tanks to truck loading racks. Each is a 2-inch pump with capacity of over 115 GPM.**

USER: **Socony-Vacuum Oil Company agency plant at Stockton, Illinois.**

Another modern bulk plant where Marlow Self-Priming Centrifugals have ended pumping problems. Any one of the four Marlows which are installed here will empty a 10,000-gallon tank car in 1½ hours — or fill a 1,500-gallon truck tank in 14 minutes — and will do it automatically, quietly and dependably.

What's more, these Marlow centrifugals would be doing their efficient job even if the storage tanks were underground, because a Marlow combines the time-proved advantages of centrifugal pumping with fast, positive self-priming action. A Marlow won't vapor lock. It purges itself automatically.

In a Marlow, the impeller alone moves the liquid—there are no auxiliary priming devices to adjust or get out-of-order. Furthermore, a Marlow *stays* efficient even after long, hard use. That's because there are no rubbing parts in these modern pumps; therefore, tank scale, welding shot and other abrasive solids which are so destructive to rotary pumps have practically no effect on a Marlow's efficiency. Maintenance costs and down-time are cut to a new low.

ALL THESE ADVANTAGES, AND MORE . . .

- ***Self-priming on suction lifts***
- ***Centrifugal action—quiet, efficient***
- ***Marlow self-compensating shaft seal***
- ***Higher capacity for size***
- ***No by-pass or pressure-relief valves***
- ***Long life and low maintenance***
- ***Continued high capacity at low initial cost***

KNOW THE DETAILS

The Marlow bulletin, "Petroleum Product Pumps," describes and illustrates the advantages of this modern way to pump petroleum products. A copy will be sent you promptly.

MARLOW PUMPS • RIDGEWOOD, NEW JERSEY

overflow line of the wall pump, also labelled "O," runs in this instance to the lower tank. Wire the wall pump in series with the burner motor, and use the tank fill and vent arrangements described earlier.

* * *

Q. Kindly favor us with the names of solenoid valves for use with No. 3 oil, pressure up to 150 lbs. P.S.I., and either 1/4" or 3/8" female I.P.T.

We desire to use them in the manner described on p. 65 of your October issue in J. W. Schulz' article, "Oddities in Servicing—I." None of our sources of supply seem to carry solenoid shut-off valves meeting the above specifications, or if they do they don't know it, as best we can gather from talking to their salesmen.

E.H.M., Kenosha, Wis.

A. On p. 117 of the issue you mention is an advertisement of a solenoid valve which appears suitable for this application.

If you will write to the following companies, you will obtain the solenoid valve data you desire.

Automatic Products Co., 2458 N. 32 St., Milwaukee 10, Wis.

General Controls, 801 Allen Ave., Glendale 1, Calif.

Sid Harvey, Inc., Valley Stream, N. Y.

The Mercoid Corp., 4201 Belmont, Chicago 41, Ill.

Minneapolis-Honeywell, Minneapolis 8, Minn.

Penn Electric Switch Co., Goshen, Indiana.

Perfex Corp., Milwaukee 7, Wis.

Skinner Elec. Valve Div., The Skinner Chuck Co., 137 Belden Ave., Norwalk, Conn.

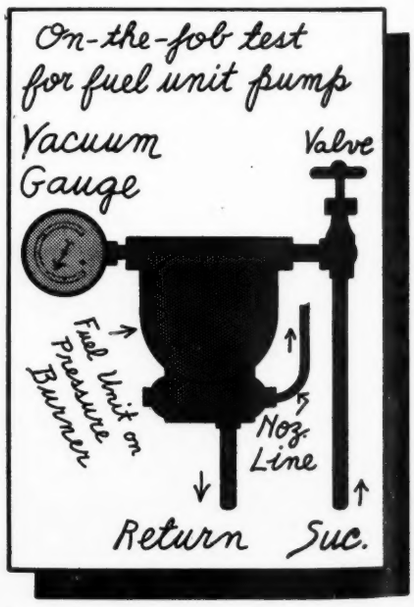
* * *

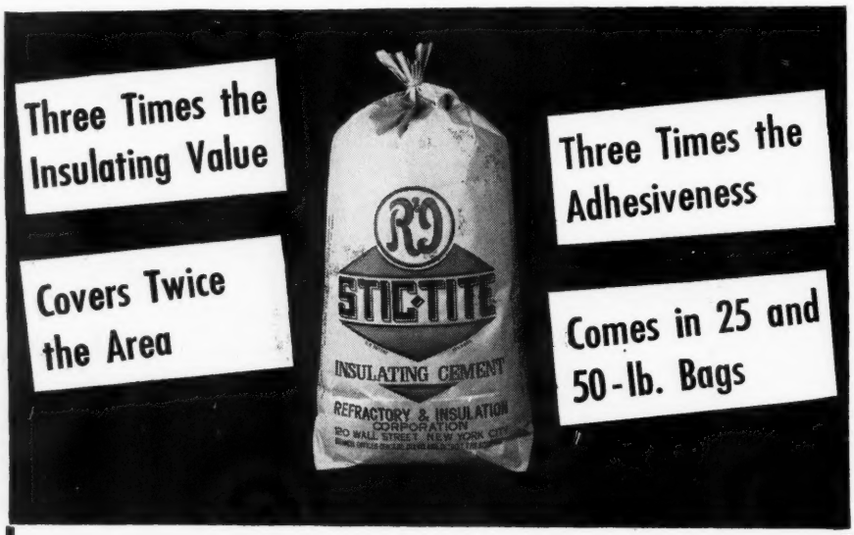
Q. How do I vacuum gauge test a fuel unit when it stops pulling oil dependably from an outside tank? I think the pump is worn and weak, but before replacing it want to make certain. Can you give me the proper vacuum readings?

A.H.D., Ashland, Ohio.

A. Remove the vacuum-test plug of the fuel unit and install a vacuum gauge in the way the diagram shows. Run the burner and read the gauge. If the tank is not greatly below the level of the burner, the resultant "open valve" (the suction line valve is open) reading should not exceed 10" vacuum. Next, with the burner still running and the firing door of the furnace or boiler open to play safe, close tight the burner suction line valve. A fuel unit as good as new will generally develop a minimum of 25" of vacuum as its "closed valve" reading.

The "open valve" reading tells you





In addition to above advantages, R & I Stic-tite Insulating Cement is easier to apply. Simply mix it with clean, cool water and apply it with your hands, then smooth over with a trowel. No reinforcement is need up to 1½" thick.

It will save your customers about 90% of the heat lost from uninsulated heating boilers, hot-water tanks, valves and fittings.

Your supply house has it. Write us for Bulletin 1-75.

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Connecticut: New Haven, Bell Pump Service Co., 750 Congress Ave.
D. C.: Washington, R. E. Michel Co., 2219 5th St., N. E.
Illinois: Chicago 44, W. C. Morse Co., 4629 West End Ave.
Illinois: Rockford, Oil Heat Parts Service, 608 Lafayette Avenue
Illinois: Winnetka, North Shore Heating Supply Co., 806 Oak St.
Iowa: Des Moines, Iowa Electric Motor Service, 725 Tuttle St.
Maine: Portland 3, Refrigeration & Oil Burner Supply Co., 133 Marginal Way
Maryland: Baltimore 2, R. E. Michel Co., 1011 Greenmount Ave.
Massachusetts: Cambridge, Cronin Supply Co., 60 Broadway
Massachusetts: Framingham, Oil Heating Supply Co., 8 Cedar St.
Massachusetts: Malden, E. L. Kimball Co., 25 Lynde St.
Massachusetts: Springfield, Bell Pump Service Co., 888 Main St.
Massachusetts: Wollaston, W. S. Plummer, 109 Lincoln Ave.
Massachusetts: Worcester, John W. Walsh, Inc., 66 Grove St.
Michigan: Detroit 2, Wm. G. Boales & Associates, 6429 Hamilton Ave.
Michigan: Detroit 3, Hydraulic & Pump Repair Co., 711 E. McNichols Rd.
Minnesota: St. Paul 4, Thermal Co., Inc., 2526 University Ave.
Missouri: Kansas City 8, Superior Refrigeration Supply Co., 1816-18 Walnut St.
Missouri: St. Louis 10, Crescent Parts & Equipment Co., Inc., 825-831 S. Boyle Ave.
New Hampshire: Portsmouth, Earl H. Clark, 510 Sherbourne Road
New Jersey: Elizabeth, Certified Fuel Unit Service, 600 Spring St.
New Jersey: Hawthorne, Universal Engineering Co., 344 Wagaraw Rd.
New Jersey: Merchantville, Certified Fuel Unit Service Co., Box 136
New Jersey: Newark, Certified Fuel Unit Service, 671-3 Sanford Ave.
New Jersey: Pennsauken Twp., Certified Fuel Unit Service, Browning Road Circle, Jct. Rts. 38 & 40.
New York: Albany, Certified Fuel Unit Service Co., Inc., 1018 Central Ave.
New York: Bronx 61, Vin's Oil Burner Parts Supply Co., 3614 E. Tremont Ave.
New York: Brooklyn 16, The Capson Co., Inc., 106 Rogers Ave.
New York: Buffalo, Frontier Oil Refining Corp., 367 Northampton St.
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Pennsylvania: Philadelphia, Certified Fuel Unit Service Co., 3412-14 W. Allegheny Ave.
Rhode Island: Providence 3, Providence Plumbing Supply Co., Inc., 47 Pine St.
Rhode Island: Providence, R. I. Fuel Pump Service Co., Inc., 847 W. Main St.
Utah: Salt Lake City 7, Inter-Mountain Oil Burner Supply Co., 4045 S. State St.
Virginia: Norfolk, Refrigeration Suppliers, 633 W. 24th St.
Virginia: Richmond, R. E. Michel Co., 514 S. Pine St.
Virginia: Roanoke, Southern Refrigeration Corp., 1850 S. Jefferson St.
Washington: Seattle, Seattle Pump Service Co., 609 8th Ave. N.
Washington: Spokane, Charles A. Black, N. 614 Monroe St.
Wisconsin: Milwaukee, Refrigeration Parts Co., 2534 W. Fond Du Lac Ave.

Webster Electric Fuel Units are manufactured in Canada by Canadian Acme Screw & Gear, Ltd., Toronto

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RACINE WISCONSIN

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A new handy wall chart giving basic servicing information on current Webster Electric Fuel Units is now available. Mail this coupon to Webster Electric Co., Racine, Wis., for your free copy. (FO)

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how hard the pump works to draw oil from the tank. The "closed valve" reading tells you how high a vacuum the pump can develop.

Before making the vacuum tests, make certain that the fuel unit strainer is clean. Check also any strainer or filter in the suction line.

You would do well to make vacuum tests on half a dozen installations, new and old, to give you comparative data on the fuel units you sell and service. You can test each installation in about ten minutes.

Q. Because we handle hundreds of steam radiator vents a month for oil-fired plants, I've been checking some in my own home. Watching closely, I see that firing 1.5 gph in the boiler my radiators heat across the tops. Steam quickly reaches the vent valve and closes it while the radiator is still two-thirds full of air, then the room thermostat stops the burner. The radiators never heat fully during a normal run of the burner.

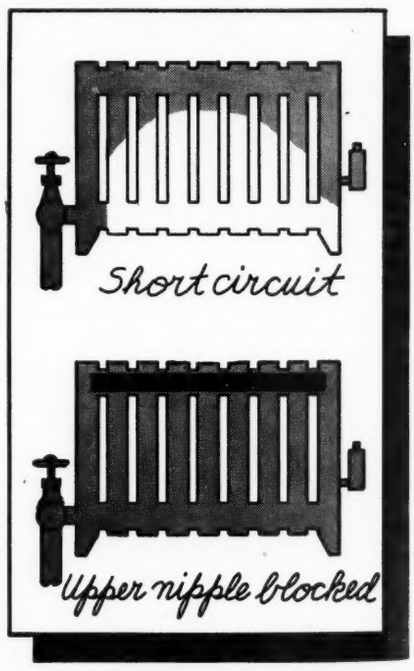
Cutting the firing rate to 1.25 gph just for try results in some radiators staying entirely cold even though I adjust the vent-valves as best I can to avoid this.

For your information, this is a typical plant fired 1.5 gph and having 340 sq. ft. of standing radiation. Stack temperature is 480° and CO_2 is 12.5%. About 1,300 gallons of oil are used a year for heating; with additional 200 or 300 gallons for summer hot water from the tankless coils.

Isn't the rapid closing of the steam vents harmful to efficiency since it air-binds two-thirds of the radiation? What can I do if I am determined, even at some bother, to end the trouble?

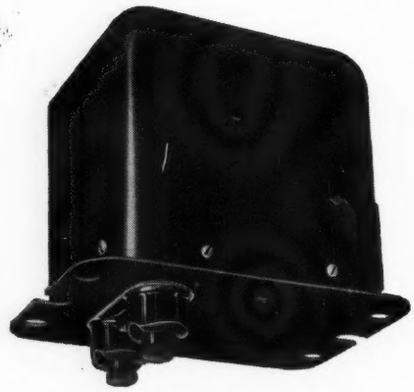
F.J.J., Newark.

A. The short circuiting you describe occurs because for years now hot water type radiation has been used for both hot water and steam types of heating plants. There are no disadvantages to it. In the first place, it helps your adjustable vent-valves distribute the heat properly in the house by stopping or slowing the venting of the radiators which receive steam first; the other radiators receive steam faster and in greater amounts after a few favored radiators stop venting.



In the second place, by waiting long enough and keeping the burner running, you will find that in time the radiators do become completely filled with steam. During your tests, radiators two-thirds cold and one-third hot heated the house properly. On a sub-zero morning, a check-up would show that the radiators

Television Interference?



THE Dongan Transformer is a favorite with oil burner manufacturers because of the way in which it is shielded to prevent television and radio interference.

•

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DONGAN ELECTRIC MFG. CO.

2981 Franklin **Detroit 7, Mich.**

The Dongan Line Since Nineteen-Nine

Write for NEW CATALOG

DONGAN TRANSFORMERS

become entirely rid of air in an hour or so if the burner operates steadily or develops boiler pressure because this is necessary for proper heating.

You can easily convert your radiators to the old-fashioned steam type by using a metal tube or pipe to plug the upper nipples the way the diagram shows. Use the largest tube or pipe which you can slide into the radiator. Close the end with any kind of metal plugs. The results will be interesting to you, perhaps, but the heating may become poorer, not better. Instead of a radiator heating across the top during a typical oil burner "on" period, it will heat vertically so that the one-third of it closest to the steam feed valve will be hot when the burner stops. The vent-valve end will be cold. With the short circuiting you now have, the heat in the radiator is distributed better than it will be with the top nipples blocked. All told, from what you say about your fueloil consumption and combustion test readings, your heating plant needs no improvements.

* * *

Q. How and how often should burner motors be oiled?

M.E.K., Wichita, Kan.

A. In general, lubricate the motor bearings of a typical gun-type, domestic burner two to four times a year, giving each bearing a reasonable amount of oil to saturate the wool packing in the oil reservoir or fill the reservoir. The use of #20 SAE motor oil seems to work out well.

* * *

Q. What's the maximum speed of the flue gases in the indirect or radiator channels of a low-capacity oil furnace?

O.P.W., Indianapolis.

A. One way to arrive at your answer is to design the warm air furnace to give a draft-drop no higher than about .02" or .03" between the combustion chamber and the smoke outlet, then ascertain by computation or measurement the velocity of the gases in the flue passages. With excessive velocity for these gases, the draft-drop through the flues may be .05" or higher, according to many experts at furnace and boiler design.

* * *

Q. What is good practice in sizing forced circulation hot water radiators compared to steam radiators?

M.W.L., Hempstead, N. Y.

A. One rule is to have the hot water radiators 20% larger than the steam radiators you would use to heat the same rooms. Much depends on how closely you figure the Btu losses of the rooms you are heating.

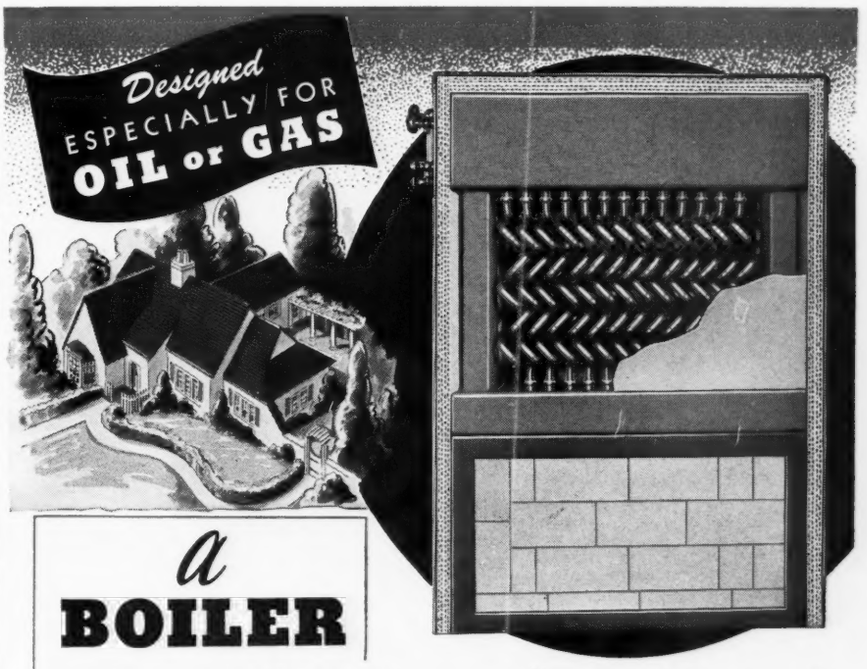
* * *

Q. We see hot water storage tanks of sizes from 40 to 100 gallons in similar homes, so would appreciate help in picking the tank size for a modern two-bath, seven-room house which will have a dishwasher and a washing machine. The owner wants lots of steaming hot water. We can arrange to have a big tank-type heater coil in the hot water boiler which heats the house.

T.B.N., Lafayette, Ind.

A. You are asking for a guess, for you do not indicate the number of occupants of the house, the hot water consumption of the dish and clothes washers and the number of times per day or week these will be used, or the capacity of the large indirect water you will have in the heating boiler.

If four or fewer people will occupy the house usually, our best guess is to



a
BOILER
that Amazes Home Owners!

The Bryan Copper Tube Boiler delivers service that is beyond the reasonable expectations of even the most particular home owner. A home owner wants and expects good, reliable service from his heating plant. The Bryan does more. Fast acting copper tubes deliver heat to radiators in record time and with astonishing fuel savings. You profit by delivering satisfaction plus.

The Bryan is compact, modern, and a cinch to install. Even the firebox lining on oil fired models is built in at the factory.

Send for Catalog

OIL FIRED MODEL

GAS FIRED MODEL

BRYAN STEAM CORPORATION, 1128 Chili Pike, Peru, Indiana

BRYAN Copper Tube BOILERS

install a 60 or 70 gallon hot water tank. For more than four occupants, provide additional hot water storage tank capacity of 15 gallons for each person. For six occupants, then, the tank size would be 90 or 100 gallons. We are basing our guesses on the indirect water heater's being able to provide at least 120 gallons of hot water, heated 100°, per three hours, with the boiler water at 200° F.

* * *

Q. What should the spark-on period be for a modern oilburner? According to the radios, my spark is on for 35 to 50 seconds but my neighbor's is on for three times that long. Which is right?

E.R.A., Somerville, Mass.

A. The stack temperature of the furnace or boiler and the make, model, and adjustments of the stack control panel usually determine the spark timing. There may be nothing wrong with a burner which has the spark on for only five seconds, or with another burner which keeps the spark on for two minutes. With certain burners, the spark stays on all the while the motor runs. If the spark interferes with your radio, you'd better call in a burner expert to end the interference. That usually can be done quickly and inexpensively. Changing the spark timing is a poorer answer to the problem.

* * *

Q. What is the proper size for the suction and return lines, each about 65 ft. total length, for a commercial-size pressure atomizing burner supposed to use No. 4 or No. 5 oil according to the dealer who sold it? As oil distributors, we are used to seeing 1¼" lines to burners using No. 5 oil. These lines are smaller. Should the lines of this burner be heat insulated?

R.E.W., Washington, D. C.

A. Usually nothing is gained by using suction and return lines larger than ¾" or 1" size for a pressure burner, as the burner is incapable of using the heavier oils which need larger lines. Write to the burner manufacturer for dependable information on the heaviest grade of oil suitable for the particular burner model. Probably the burner cannot use the heaviest oil that can pass as CS 12-40 No. 5 fueloil. It may operate well on oil with viscosity as high as 70 seconds Saybolt Universal at 100° F. regardless of whether the supplier of such oil calls it No. 4 or No. 5.

Little is gained by insulating the outside oil lines of such an installation. It may be advantageous to have them buried somewhat deeper than is usual for pressure burners; having them three to four feet under the surface of the ground may be good.

Longer Lasting! Better Performance!
More Economical!

GREATER PROFITS FOR YOU!

The Bethlehem

DYNATHERM

Thousands of home owners all over the world have put their stamp of approval on the New Bethlehem Dynatherm with the money-saving, fuel-saving "Whirling Flame" that extracts every bit of useful heat from every last drop of oil, assuring BIG SAVINGS ON FUEL BILLS! Your customers, too, will choose the Bethlehem Dynatherm when they compare installed prices and values with this great development of a century-old company!

A few exclusive Bethlehem Dynatherm territory Franchises are still available. Wire or write immediately for full information.

THE BETHLEHEM FOUNDRY & MACHINE COMPANY
BETHLEHEM, PENNSYLVANIA

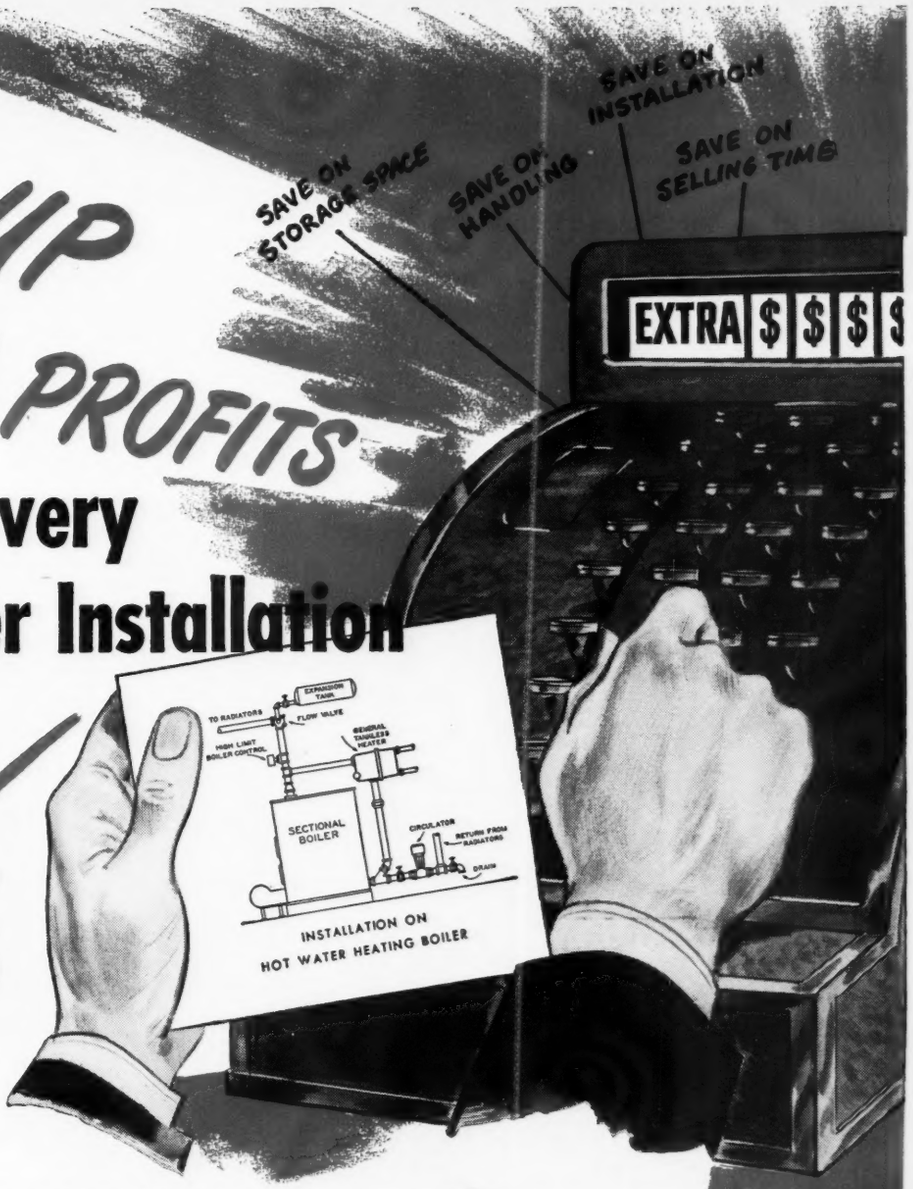
"May I have tomorrow off? My horoscope says it's a bad day to undertake any business ventures!"

Chester W. Gates, Baldwin, Kan., has been named representative for Field Control Div., Mendota, Ill. He will represent the line of Field barometric draft controls in the states of Texas, Kansas and western Missouri.

RING UP EXTRA PROFITS

on every Water Heater Installation

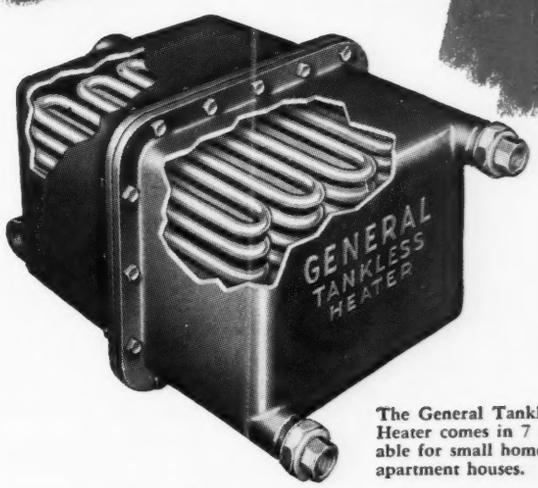
by specifying GENERAL TANKLESS



Save money right from the start on General Tankless Water Heaters . . . money that represents an extra profit on every sale. Save it in storage costs . . . for this compact heating unit has no tank to hog valuable space. Then save it in handling and installation. No bulky tank to lug around and set up. No complicated piping. Two men can make short work of any job.

Also cash-in on a growing demand for small, efficient water heaters for automatic-fired boilers. The General saves space . . . gives up to 35 gallons of continuous, piping-hot water at the turn of a tap. No annoying waits for tank to reheat. Water is always clean, rust-free. It flows through seamless copper tubing that won't rust out . . . a long-life feature.

Take the first step now to extra profits. Write for Catalog 18. General Fittings Co., 125 Georgia Avenue, Providence 5, Rhode Island.



The General Tankless Water Heater comes in 7 sizes, suitable for small homes to large apartment houses.

GENERAL

TANKLESS AND INDIRECT
WATER HEATERS AND HEATING SPECIALTIES

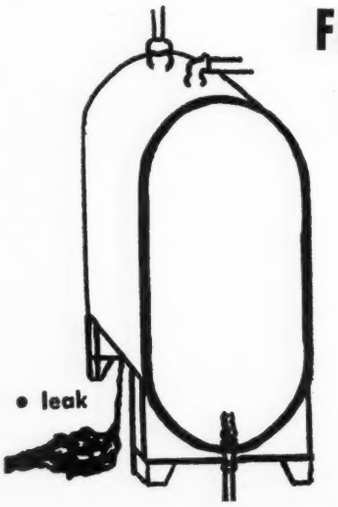
Industry Groups

Activities of local and national industry associations are reported monthly in this department. Secretaries are invited to send reports of their Group's activities to reach the editor by the 20th.

Chicago Group Meets To Elect Officers

CHICAGO OIL BURNER ASSOCIATION, Chicago 4, Ill., at its annual meeting on November 18 re-elected H. G. Shaffer, Enterprise Heat & Power Co., president for the ensuing year. J. W. Morrissey, Petroleum Heat & Power Co., was named vice-president and F. B. Caldwell renamed executive secretary-treasurer. M. J. Boyce, Ray Heat & Power Co. and F. J. Moran, C. E. Sundberg Co., both were re-elected to three year terms as directors.

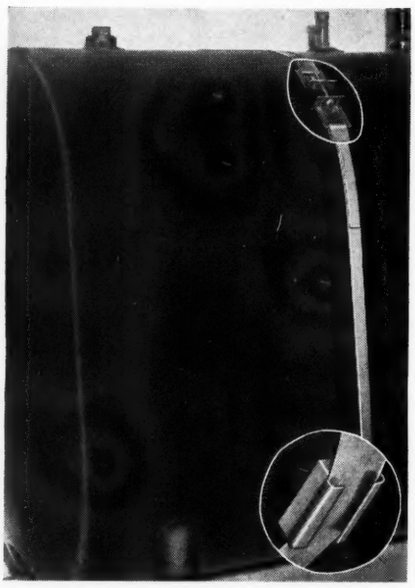
Mr. Shaffer explained the goals of the group as establishment and promotion of better relations and cooperation between labor and management, the public to benefit by better installations and servicing which would result. Mr. Shaffer revealed also Association plans to establish a school to qualify men as burner service and installation experts. It is anticipated that the assistance of burner and accessory manufacturers will be solicited to aid in the project.



FUEL OIL TANK LEAK?

***TANKIT**

Will stop it in 2 minutes!!



Now you can treat a cellar Fuel Oil Tank leak as a simple service call.

Successfully Used by Leading National Oil Companies.

Avoid

- **Costly Pumpouts**
- **Excess loss of service time**
- **Damage to cellars**
- **Lack of heat**
- **Loss of customers**

Remove the emergency! Replace the tank at your convenience.

List Price:
$3.75 ea., lots of 1 or 2
$3.50 ea., lots of 3 to 11
$3.25 ea., lots of 12 or more

***Tankit consists of an adjustable oil resisting seal, a steel band and a pressure increasing device, enclosed in a round metal container. *Tankit can be placed around an exposed fuel oil tank in only two minutes and stops the leak immediately. *Tankit can be used again and again.**

***Trademark Registered**
***Patent Pending**

The TANKIT CO.
CEDARHURST, L. I., N. Y.

Qualified Jobbers and Manufacturers' Representatives considered.

Annual Meeting of PHIB Elects Slate of Officers

THE 29TH ANNUAL MEETING of the Plumbing and Heating Industries Bureau, held in Chicago on October 21, received reports from the secretary and retiring president, the treasurer and chairman of the finance committee.

Elected for the coming year were: President, E. J. Gossett, president, Bell & Gossett Co., Morton Grove, Ill.; vice president, George O. Toepfer; treasurer, Earl Brown and secretary, Norman J. Radder.

SBI Convenes In Semi-Annual Meeting

THE SEMI-ANNUAL MEETING of the Steel Boiler Institute, Inc., Philadelphia 10, Pa., was held at the Greenbrier Hotel, White Sulphur Springs, W. Va., November 8 and 9. Approximately seventy-five representatives of member companies attended the meeting, at which chairman Paul Addams, Fitzgibbons Boiler Co., rendered a report dealing with the activities of SBI's Marketing Division and Norman Radder, Plumbing and Heating Industries Bureau secretary, detailed the workings and effects of the Bureau's publicity services. R. A. Locke, president and general manager of the Institute, presided at the sessions, which included also committee meetings.

Robert Gray, FUELOIL & OIL HEAT, speaker at the general session of the meeting, discussed the resumption of normal oilheating activities.

Officers For 1949 Elected By NYOHA

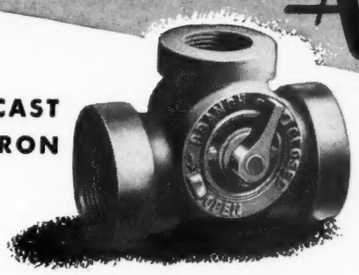
AT THE REGULAR MEETING of New York Oil Heating Association, Long Island City 1, N. Y., held November 8, the following officers were elected: President, Matthew H. Conviser, Quiet May Oil Heat Corp.; vice-president, Edward G. Miller, Quiet-Heet Oil Burner Co.; treasurer, Thomas F. Hanney, Hanney Fuel Oil Co.; secretary, C. Otis Smith,

THRUSH

Adjustable Supply Tee

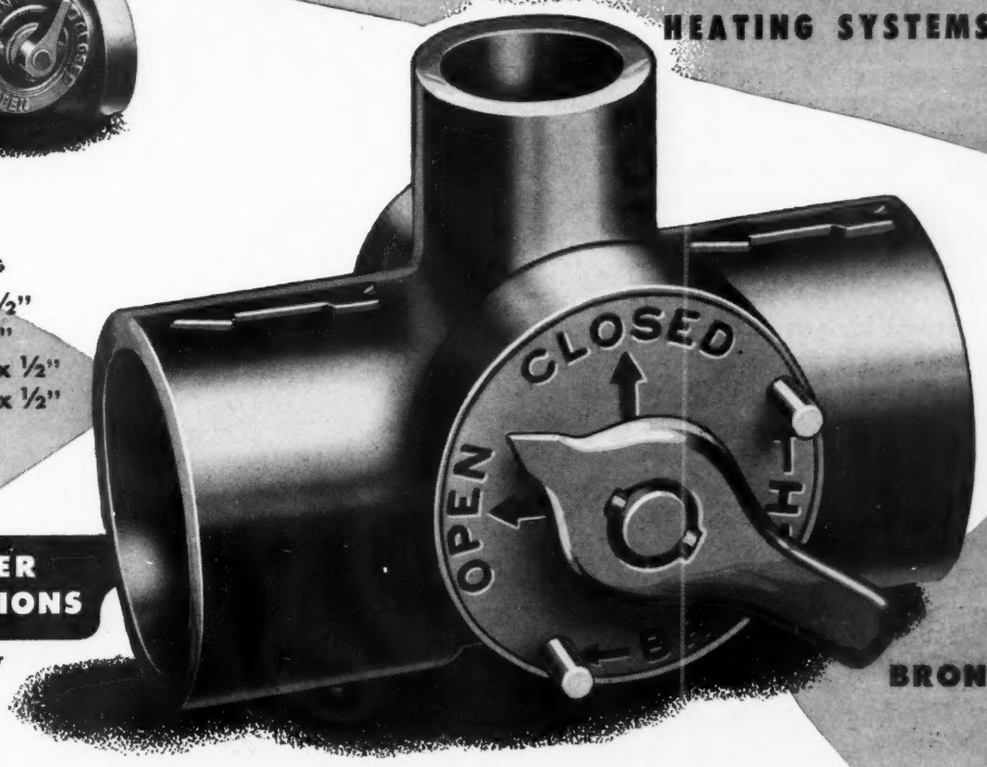
FOR BALANCED ONE-PIPE HOT WATER HEATING SYSTEMS

CAST IRON



Bronze Sizes

¾" x ¾" x ½"
1" x 1" x ½"
1¼" x 1¼" x ½"
1½" x 1½" x ½"

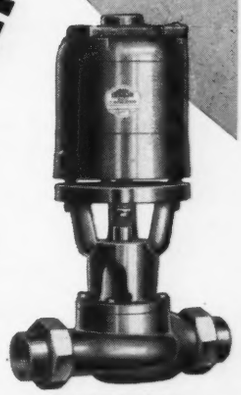


SOLDER CONNECTIONS

Patent Applied For

BRONZE

now available in BRONZE



THRUSH
WATER CIRCULATOR

NOW YOU can give your customers the finest one-pipe Thrush Ajustaflo Hot Water Heating with forced circulation and year 'round domestic water supply, using either iron or copper piping. The famous Thrush Adjustable Supply Tee permits accurate adjustment of heat from each radiator. Better heating increases customer satisfaction, builds your reputation. Ask your wholesaler about it today or write Department C-12.

H. A. THRUSH & CO. • PERU, INDIANA

Smithco Oil Co., Inc. and sergeant-at-arms, Charles W. Krumenacker, Bedford Oil & Burner Service Corp. In addition, seven members were elected to the Board of Directors, according to Philip H. Schepp, executive secretary.

Oil Heat Divisions Hold Meeting In Philadelphia

OIL HEAT and Oil Heat Dealer Divisions, Electrical Association of Philadelphia held the first of this season's dinner meetings on November 10 at Association headquarters. Featured speaker was Robert Gray, FUELOIL & OIL HEAT, whose topic covered current conditions pertaining both to fueloil and oilburners. A discussion period followed the talk.

John A. Morrison presided at the meeting and introduced other guests who spoke briefly. They were: W. O. Spiess, national secretary, Distribution Division, Oil-Heat Institute of America, Inc., New York 16, N. Y.; W. A. P. Henninger, chairman, Oil Heat Division and Harold C. Thorpe, chairman, Oil Heat Dealer Division, Electrical Association of Philadelphia.

Beckwith Speaker At Massachusetts Meeting

THE MEETING held on November 16 at the Fox and Hounds Club by the Massachusetts Oil Heating Association, Inc., Watertown 72, Mass., was designated Oil Heat Institute of New England night. MOHA invited members of all other local associations to attend, with a particular invitation extended to New England OHI members.

Featured speaker was Fred N. Beckwith, executive secretary, OHI of New England, whose topic discussed "The problems facing the oilheating dealers." The talk considered both present day problems as well as those that dealers are likely to encounter in their future operations. The business portion of the meeting was preceded by a dinner.

Wisconsin Dealers Hold Annual Meeting

NOVEMBER 18 was the date of the annual meeting of the Wisconsin Oil-Heat Association, Inc., held in Milwaukee's Wisconsin Hotel. The business meeting was convened after a dinner and included on its agenda the presentation of annual reports, amendments to the Constitution and By-Laws and election of officers. Designated were: President, J. L. Savage; vice-president, George Gross; treasurer, John B. Weiler; executive secretary, Harold M. Mottram; directors for three year terms, W. J. Schroeder and Julius Seiy.

New England OHI Hears Brown at Fall Meeting

TWO HUNDRED members and guests were in attendance at the Fall industry meeting and luncheon, sponsored by the Oil Heat Institute of New England, Boston 15, Mass., and held at the Hotel Statler, November 3.

Everett I. Flanders, Massachusetts Fire Marshal, was special guest and Russell B. Brown, general counsel, Independent Petroleum Association, Tulsa, Okla., was principal speaker. He stressed the point that continued high development of crude petroleum was vital for the protection of the country in case of war and advocated that the amount of

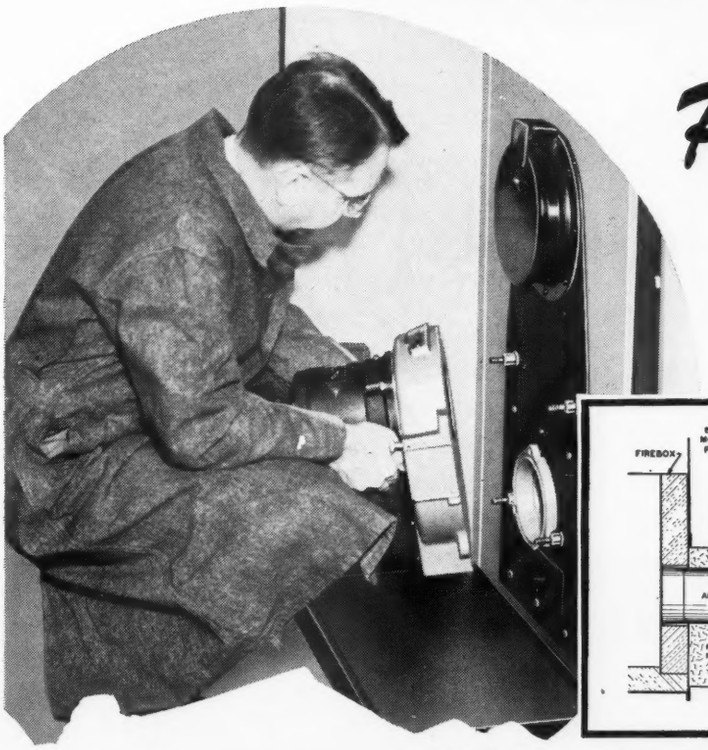
REPEAT PROFITS
GENERAL FUEL OIL FILTERS WITH THE RED TOP FOR LARGE FURNACES OR BOILERS • HOT WATER HEATERS • SMALL FURNACES SPACE HEATERS
Model 1A-25. 4¾" High. 3½" Dia. Filter Unit Surface 31 Sq. In. ⅜" Pipe Openings.
General FUEL OIL FILTER STANDARD MODEL 1A-25
Model 2A-700. 6¼" High. 4-5/16" Dia. Filter Unit Surface 72 Sq. In. ⅜" Pipe Openings.
General FUEL OIL FILTER MASTER MODEL 2A-700
Model 2A-300. 9-1/16" High. 5½" Dia. Filter Size 63 Cu. In. ⅜" Pipe Openings.
General FUEL OIL FILTER DE LUXE MODEL 2A-300
YEARLY DIVIDENDS
After making the original sale of a GENERAL FILTER, dealers make a dividend each year through the sale of replacement cartridges. The customer, of course, returns to the dealer who made the original installation —and installation is so simple that it can be made in less than two minutes. If you haven't already done so, investigate the profit possibilities of GENERAL FILTERS. See that each one of your customers has one.
WRITE FOR THE NAME OF YOUR NEAREST JOBBER
GENERAL FILTERS INCORPORATED
GENERAL FUEL OIL FILTER
12890 WESTWOOD AVE. DETROIT 23, MICHIGAN
CANADIAN FACTORY BRANCH: GENERAL FILTERS CANADA, LTD., 173 STRACHAN AVE., TORONTO 3, ONTARIO

"YEARS AHEAD" in INSTALLATION and SERVICING FEATURES

MONCRIEF'S NEW

Plate Mounted

Oil Burner



Mounting the Burner Chassis to the 4 Positioning Studs.

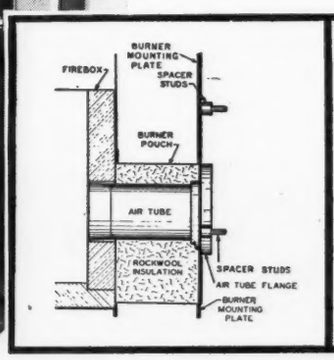


Diagram showing installation of Firebox—Air Tube—Burner Mounting Plate.

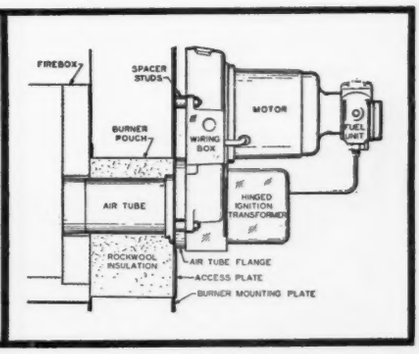
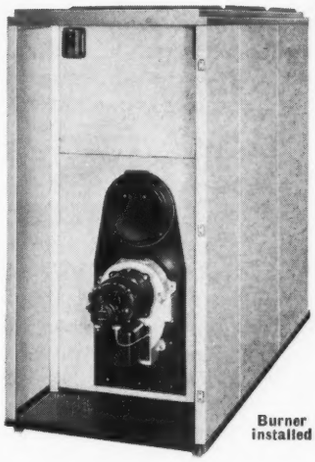


Diagram of complete Installation



Burner installed

Now it's ready for the heating trade. The oil burner that affords such revolutionary, outstanding, Installation, Servicing and Inspection features which were never until now available. Here's a unit that can't be installed wrong because . . .

A burner mounting plate with four large spacer studs that hold and also locate the complete burner chassis, insures correct installation or replacement if servicing should be necessary.

A burner that is so unusually easy to service or inspect because all parts are so readily accessible.

A burner chassis that can be removed bodily without disturbing air tube or firebox.

A burner that gives clean combustion with any commercial grade #3 fuel oil.

Write now for complete Information

THE HENRY FURNACE COMPANY

Medina, Ohio

HEATING AND AIR CONDITIONING UNITS — MONCRIEF SINCE 1895 — FURNACE PIPE AND FITTINGS

Fueloil & oil heat

import be kept at a minimum.

Dr. Henry Gerald entertained with a program combining humor, science and mental telepathy.

I-B-R Holds Three-Day Annual Meeting In October

MORE THAN 100 members and associate members of the Institute of Boiler and Radiator Manufacturers, New York 17, N. Y., attended a three-day annual meeting held at Westchester Country Club, Rye, N. Y., October 26-28. W. C. Murray, president, Utica Radiator Corp., Utica, N. Y., was elected chairman of the Institute; S. K. Smith, president, H. B. Smith, Westfield, Mass., vice chairman and R. E. Ferry, New York, treasurer.

A field training program was authorized and preparation of instruction material will be undertaken immediately. A full-time instructor will conduct the course, the first of which is expected to be held during May, 1949. A manual of instructions and two sound-slide films are to be employed in the classes, scheduled for various cities from coast-to-coast. Present plans limit classes to 100 students, with expectations to reach between three and four thousand in a year. The courses are intended for heating and piping contractors, dealers and their employees and representatives of wholesalers.

Two 1949 short courses also were authorized during the meeting, one to be held at the University of Illinois and the other at a school to be announced later. These differ from the field training courses in that enrollment is more limited and the study course more intensive.

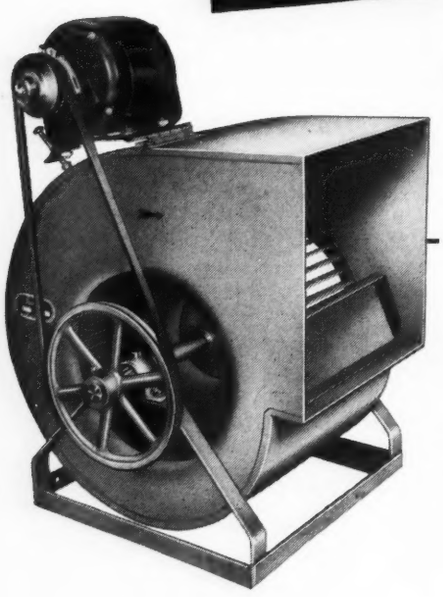
During 1949 two additional installation guides are to be made available, covering cast iron radiant baseboards and two-pipe reverse return forced circulation hot water heating system. These guides supplement four others already issued.

Members voted to continue the consumer advertising campaign, started early in 1947. R. E. Ferry reported on the wide distribution of the Institute's booklet, "Enjoy Better Living With Radiant Sunny Warmth," as a result of the advertising and revealed many firms purchase the booklets for use in their own promotional activities.

Warren S. Harris, special research associate professor, University of Illinois, reported on research work in steam and hot water heating being conducted under a cooperative agreement between the University and the Institute. Nine different phases of research are being pursued simultaneously in three places, with most of the work at the I-B-R Research Home this past year concerned with determining the cost and solving other problems of heating domestic water indirectly.

Other reports were made by L. N. Hunter, chairman of the ASHVE research committee, discussing the program of research on panel heating; by J. W. Hall, summarizing work with Heating, Piping and Air Conditioning Contractors National Association on a textbook on boiler erecting practices; by Mr. Ferry on the cooperation between the Institute and American Uniform Boiler Law Society on boiler inspections; by Norman Radder on publicity activities of Plumbing and Heating Industries Bureau.

Brundage gives you all 4 for your Blower Needs



DESIGN

Brundage Blowers are extremely quiet, yet highly efficient maintaining static pressure well above most requirements.

MATERIALS

In spite of shortages and high prices, Brundage continues to use only the highest grade materials and equipment. All motors furnished on Brundage Blowers are of nationally known make.

WORKMANSHIP

Brundage craftsmen still respect a job well done. Working with efficient, accurate tools, they produce a well-finished, sturdily built blower that you can rely on for uniformly good performance.

PRICE

Brundage is known throughout the industry for maintaining quality and at the same time holding prices to the lowest possible level. This Brundage policy helps you produce a high-quality product at a sensible price . . . a price that means more sales for you these price conscious days.

To get all four of the things you want . . . quiet, efficient design, finest materials, excellent workmanship and sensible prices . . . specify Brundage Blowers.

THE Brundage COMPANY

Blower Specialists Since 1919

555 NORTH PARK STREET
KALAMAZOO 11, MICHIGAN

once again

WE'LL SIZE UP YOUR MARKET

in the

JANUARY YEARBOOK ISSUE

The STATISTICAL REVIEW of 1948

THERE'S always a big demand for copies of our January issue because it's so packed with information about the previous twelve-month period that's almost indispensable in forecasting sales operations, purchasing and promotional programs.

This is the 24th year we've painstakingly gathered statistical material through a comprehensive survey in your industry. We include also a consolidation of Government statistics that have bearings on our industry so that you'll not have to dig them out and bring them together yourself.

Last January's issue was our largest principally because so many advertisers realized that it was good business to be represented in such an important number.

●

Reserve space now. Forms close Tuesday, December 28th.

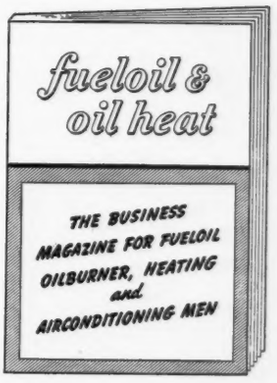
●

This issue will also be the Show Issue. It will give the full program of the International Heating & Ventilating Exposition.

It's also the

SHOW ISSUE

FORMS CLOSE DEC. 28th



Fueloil & Oil Heat

232 MADISON AVE., NEW YORK, 16

LEXINGTON 2-4566

Manufacturers Activities

Shell Booklet Describes Combustion Head Development

"SOMETHING NEW IN OIL HEAT," a 16-page booklet prepared by Shell Oil Co., Inc., describes in considerable detail the development and performance of the Shell combustion head. Shell does not manufacture the head itself or derive income from its use, but, in the interest of fueloil conservation, makes its design available to manufacturers on a royalty free basis. At present nineteen firms are marketing oilburners in which the head has been incorporated.

The booklet traces the development of the combustion head in Shell's Sewaren, N. J., oilburner laboratory and explains its operation in supplying controlled flow of air for oil combustion in conventional gun-type oilburners. It explains the combustion problem the head is designed to overcome, contrasts performance of conventional burner heads with Shell's and explains that homeowners can employ the head by installing a new burner equipped with it or replacing the casting and fan on his present burner. A chart showing amounts of fuel saved in twelve typical homes through using the combustion head is included in the booklet.

Dole Display Features Thermostatic Air Control

A POINT-OF-SALE DISPLAY, available from Dole Valve Co., Chicago 12, Ill., contains a shelf for actual exhibit of the

complete unit of the Dole thermostatic air control, and beneath it is an actual-sized illustration of the unit. The device permits homes heated with forced warm air to control individual room temperatures automatically.

The multigraphed display measures 28" high by 17" wide intended for dealer use. Displays are furnished by the company on request.

Harvey Appoints Seventeen Additional Distributors

ANNOUNCEMENT of the appointment of seventeen additional distributors has been made by Winthrop A. Mandell, manager, wholesale department, Sid Harvey, Inc., Valley Stream, N. Y. The firms will handle new and rebuilt Harvey oilburner accessories and brings to a total of thirty-one the number named.

In New York State the following were designated: Automatic Supply Co., Albany; Stevens Plbg. Supply Co., Inc., Baldwin; Triplex Supply Co., Inc., Bay Shore; Wallack-Hollander, Glen Cove; Hempstead Plbg. Supply Co., Inc. and Harry Beroza, both Hempstead; Canfield Supply Co., Kingston; Carl A. Bovard, Lake Placid; Ronkonkoma Supply House, Ronkonkoma; Twin City Plbg. Htg. & Supply Co., Tonawanda and H. C. Krueger, Jr., Wantagh.

Other outlets named: S. R. Carter Supply, Inc., Burlington, Vt.; Hanson

IN BULK PLANT OPERATION PUMP MORE GALLONS AT LESS COST WITH GRANCO

You're money ahead every minute a GRANCO Pump is on the job! With a GRANCO you get

LOWER INITIAL COST
LOWER MAINTENANCE COST
LOWER OPERATING COST
LONGER TROUBLE FREE LIFE
=LOWER COST PER GALLON

GRANCO Pumps handle any petroleum liquids efficiently, from gasolines to asphalts. Whatever your requirements, there is a quiet, compact GRANCO Pump that will do the job better.

BULK TRANSFER PUMPS

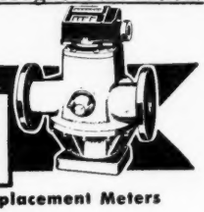
GRANCO PUMPS give unexcelled performance in Bulk Plant or Transfer Station work. High vacuum, high lift. Never need priming at start or finish of loading operations. No "bleeder" lines. Reversible action and four ports fit pump to any pipe hook-up. At left, Model DEES—90 GPM Pump with gear drive in oil-tight housing.

HERE'S WHY GRANCO PUMPS ARE BETTER!

The exclusive, patented ball and squeeze action of the GRANCO spherical rotor—only moving part—provides direct positive expulsion from pump chamber into line of flow. Quiet, friction-free, no contact between rotor and housing—for better performance, longer wear. No gears, blades, scoops, valves or dragging parts.

See your distributor, or write for full particulars. Sales and Service "at your service" throughout the nation.

Granco



GRANBERG CORPORATION
Oakland 8, California

Also makers of Granco Rotary Positive Displacement Meters

OIL
COASTAL
COMPANY

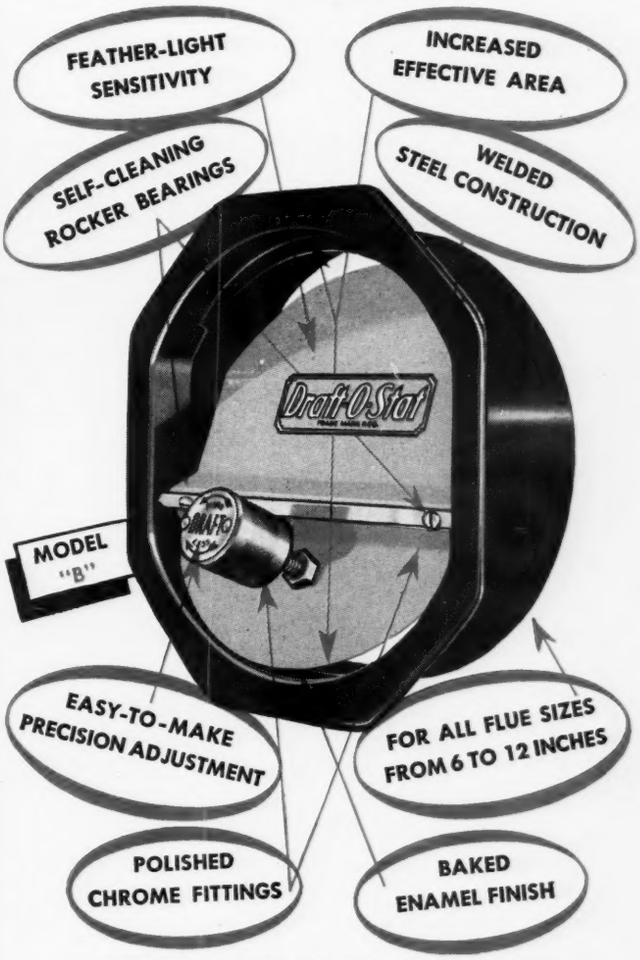
Petroleum
Products

EXECUTIVE OFFICES
NEWARK, NEW JERSEY

There is only ONE
Trade Mark Registered
Draft-O-Stat
BAROMETRIC DRAFT CONTROL
—and HOTSTREAM makes it!

Draft-O-Stat has for many years been the standard barometric draft control mechanism for boilers, furnaces, oil burners and stokers. Hundreds of thousands of successful installations on domestic, commercial and industrial heating equipment have established its leadership in the field.

The Model "B" Draft-O-Stat with all-steel construction has been designed for greatest efficiency. It insures a steady, unchanging rate of draft in the chimney, providing maximum utilization of furnace heat. Top performance and long life is insured by the features shown below.



Model "A" Draft-O-Stat (original design) available in domestic sizes 14" to 20"; commercial sizes 16", 18", 20" and 24"; industrial sizes 24", 30" and 36".

INSIST ON Draft-O-Stat
FOR BEST RESULTS ON EVERY HEATING INSTALLATION

The HOTSTREAM Heater Co.
2363 EAST 69th STREET • CLEVELAND, OHIO
Manufacturers of water heaters and draft controls

Supply Co., New London, Conn.; Buffalo Valley Supply Corp., Lewisburg, Pa.; Reading Heater & Supply Co., Inc., Reading, Pa.; Greenberg Supply Co., Wilmington, Del.; Tacoma Plbg. Supply Co., Tacoma, Wash.

Supplier's Meetings Tell Manufacturers' Stories

REPRESENTATIVES of manufacturers whose products they handle are being given an opportunity to educate dealers in the construction and use of their products in a series of meetings sponsored by Atlantic Burner Supply Co., Ozone Park 16, N. Y. Meetings are followed by refreshments and discussion.

On October 29, Jim Ramsay, John Dobise and Russ Evans showed the McDonnell & Miller slide film to 70 men from dealer organizations, and discussed the construction, installation and maintenance of low water controls and hot water specialties.

Gene Price and Bob Ratliff of Penn Electric Switch Company also showed a slide film and discussed controls with 75 representatives of dealer and service organizations on November 15. The first of the series of meetings in September was addressed by Frank Brown of the Williams Oil-O-Matic organization. Other meetings are to follow.

Besides supplying parts and accessories for the oilheating trade, Atlantic Burner Supply also is manufacturer of the "Noisy Martha" line of oilburners, and recently was named authorized service station for automatic controls made by Penn Electric Switch Co.

BUTLER

...the Finest in

BASEMENT FUEL OIL TANKS

★ Prompt Delivery
★ Easy to Handle
★ 275 Gal. Capacity
★ 14-Gage Steel
★ Long-Life Construction

CLEAN • SAFE FUEL STORAGE

Butler Basement Fuel Oil Tanks are sturdily designed for quick, easy installation. The shape of the tank allows plenty of clearance for carrying through doors and down stairways. Easy handling is assured by Butler head-to-shell construction which provides grip room on each end of tank. Dished heads have broad, flat surface for efficient stacking and loading.

Each tank has welded-on lugs into which 1¼" pipe legs can be threaded. Dark green finish is painted on and dried in modern ovens to assure a hard smooth surface.

• • •

Send for illustrated folder with complete construction information on Butler Basement Fuel Oil Tanks. Mail coupon today.

BUTLER MANUFACTURING COMPANY

KANSAS CITY, MO.
GALESBURG, ILL. RICHMOND, CALIF. MINNEAPOLIS, MINN.

Address Inquiries to: 7317 East 13th St., Kansas City 3, Mo., or 917N Sixth Ave. S. E., Minneapolis 14, Minn.

Send illustrated folder with complete information on Butler Basement Fuel Oil Tanks.

NAME _____

ADDRESS _____

CITY _____ ZONE ____ STATE _____

Marlow Pumps Issues Pump Selection Handbook

A 24-PAGE HANDBOOK, prepared and issued by Marlow Pumps, Ridgewood, N. J., aids in the selection of the proper type and size pump for oil country pumping services. The guide presents information on four basic types of oil country pumps and outlines their main characteristics. Another section simplifies the selection of the right type pump, followed by information to determine the proper size pump needed.

Typical Marlow pumps for oil country use are shown and described briefly, accompanied by pump performance tables. The guide offers also a list of operating hints for self-priming centrifugal pumps.

Timken Wins Award In Packaging Competition

A FIRST PRIZE of $100 has been awarded to Timken Silent Automatic Div., Timken-Detroit Axle Co., Jackson, Mich., for its entry in the second annual protective packing competition, sponsored by the Industrial Packaging Engineers Association of America.

The carton in which Timken ships its smallest wall flame oilburner was entered and praised for efficient interior arrangement and protection afforded the contents.

General Filters Names Mercury Sales Company

APPOINTMENT of Mercury Sales Co., Syracuse, N. Y., as factory sales representatives for all of New York State, except Kingston downward and the metropolitan area, has been announced by General Filters, Inc., Detroit, Mich. The appointment completes the reorganization of the eastern territory. A. D. Redner, president of General Filters,

supervised the reorganization on the assumption that breaking up the territory into smaller units enables representatives to better service the heating jobbers and dealer purchasers of fueloil filters.

Principals of the Mercury company are W. F. Hirsch, formerly supervisor of warm air sales for American Radiator and R. J. Milholland, formerly with New Process Gear Co.

Holtzer-Cabot Purchase Abandoned by Leland

REPORT of the acquisition by Leland Co., Dayton, Ohio of Holtzer-Cabot Company, Boston, on page 94, November issue, has proved premature. A statement, contained in a November 18 letter from W. F. Lisman, president and general manager of Leland, reveals that "Negotiations took place between the owners of Holtzer-Cabot and our Company for a period of approximately two months, as it was our intent to acquire Holtzer-Cabot, however these negotiations fell through and the entire deal was called off about a month ago."

The November news item was based on accounts in Boston newspapers, which reported plans of Holtzer-Cabot to close its Jamaica Plain factory and ship the plant's physical equipment to Dayton.

Oilux Heating Equipment Featured In Literature

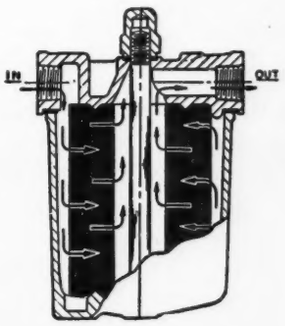
A CATALOG, featuring its complete line of home heating equipment, is available from Oilux Co., Fort Wayne, Ind. The folder illustrates gun type oilburners, forced air, oil and gas furnaces; forced air and gravity coal furnaces, gas and oilfired boilers, gas conversion burners and condensate return systems. Copies, with price listings, will be mailed on request.

Round Oak Receives Brand Names Certificate

A CERTIFICATE of Public Service, awarded by Brand Names Foundation, Inc., New York 19, N. Y., recently cited the "Round Oak" brand name for stoves, ranges and furnaces. Occasion for the award's presentation was a banquet concluding Dowagiac, Michigan's brand educational "Parade of Progress" program. "Round Oak" joins thereby a list of nearly 1,000 well-known brand

One Filter KEEPS INVENTORY DOWN

One model of Cuno MICRO-KLEAN Oil Burner Filter handles all domestic installations. Result—REDUCED INVENTORY.



PERFORMANCE
SATISFIES USERS

Graded Density in Depth" of micronic-fibre cartridge plus resinous impregnation doubles dirt-collecting capacity, eliminates channeling. Result— USER SATISFACTION.

Cuno MICRO-KLEAN Filters and replaceable cartridges are manufactured by the company whose filters are used more often in industry than any other brand. Standard replacement cartridges fit many other oil burner filters already installed.

NEW DISPLAY
GETS NEW BUSINESS

Red-blue-and-black counter display, with cut-out for actual product and pocket for sales literature, attracts attention and sells for you. Result—MORE, EASIER SALES.

FOR FREE BULLETIN, ATTACH COUPON TO YOUR LETTERHEAD

CUNO

Fluid Conditioning

Removes More Sizes of Solids from More Types of Fluids

Cuno Engineering Corp.
858 South Vine St., Meriden, Conn.

Please send information on Cuno MICRO-KLEAN Oil Burner Filters and replacement cartridges.

Name .....
Title .....
Company .....
Address .....

names of nationally-advertised merchandise cited during the past three years by the Foundation for service to the American public for fifty or more consecutive years.

The firm was founded in 1871 by P. D. Beckwith as the Round Oak Co., Dowagiac, Mich. and recently re-incorporated under new ownership as the Round Oak Co., Inc. of Indiana. Charles Mosher, Round Oak's manager, received the certificate from Henry E. Abt, Brand Names Foundation president, who paid tribute to the seventy-seven consecutive years the brand name has been used.

Babcock & Wilcox Issues New Firebox Handbook

A NEW EDITION of the B & W Firebox Handbook, devoted to the design and construction of modern fireboxes for domestic and small commercial oilburners, has been announced by Babcock & Wilcox Co., New York 6, N. Y. The handbook offers essential information on selection of suitable materials, designing and installing fireboxes.

The latest edition has been expanded to include data on commercial installations up to 15 gph and to cover special problems encountered in heating small homes. The manual points out that modern small homes, well-insulated, often have firing rates below 1.0 gph and present difficulties which require careful engineering. Designated Bulletin R-20 B, the handbook is available from the Refractories Division of the company on request.

Jack & Heintz Industries Acquire WAA Facilities

ARRANGEMENTS with War Assets Administration have been completed by Jack & Heintz Precision Industries, Inc., Cleveland, Ohio, for purchase of machinery and equipment, having an original cost in excess of five million dollars. The equipment, formerly under lease, is required for manufacturing plans and programs now under way. The company also has initiated negotiations with WAA to purchase buildings 3 and 4, part of its Bedford plants now held under lease.

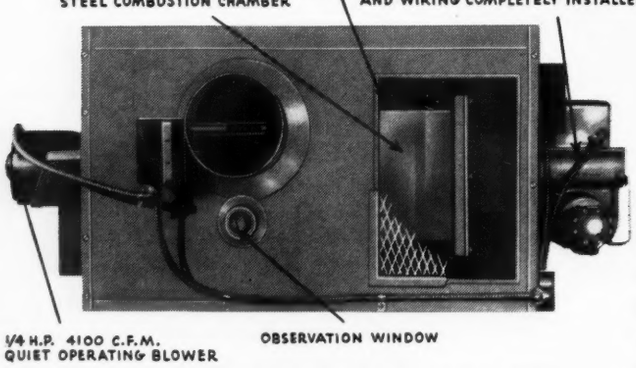
Another phase of the company's overall program calls for the sale of its Berea Rd. plant, located approximately fifteen miles from the main plants, for the purpose of consolidating manufacturing facilities. A company spokesman states that should the plant be sold, its manufacturing operations will be moved to one of the other J & H plant locations.

H. B. Smith's Booklet Is Condensed Catalog

CATALOG NO. 1817, recently announced by The H. B. Smith Co., Westfield, Mass., is a complete condensed catalog of its cast-iron boilers. Included for the first time are data on the Smith-Mills "Reliance" boiler, combination oilburning boiler, with a grate for emergency coalfiring.

Divided into five sections, Smith, Mills, Smith-Mills and Smith Hy-Test units and Sterling fin type radiators for commercial installations and baseboard convectors for residences are covered individually. For each type of boiler there is shown a dimensional drawing, accompanied by complete data and specifications tables. Available sizes of Sterling

Space Saving AUBURN Ceiling Heater


2 LARGE (ONE ON EACH SIDE) 12"X16½" WARM AIR OUTLETS WITH OR WITHOUT GRILL
ESPECIALLY DESIGNED STAINLESS STEEL COMBUSTION CHAMBER
AUBURN OIL BURNER, ALL CONTROLS AND WIRING COMPLETELY INSTALLED
1/4 H.P. 4100 C.F.M. QUIET OPERATING BLOWER
OBSERVATION WINDOW

COMPLETELY PACKAGED in 1 unit
OIL BURNER • FURNACE • BLOWER • OIL PUMP • AUTOMATIC CONTROLS ETC.

FULLY AUTOMATIC

Auburn Ceiling units embody advanced design and mechanical features for the best in care-free, economical, automatic heat. Mounted on the ceiling they save floor space, piping, unit heaters or radiators. Remarkably high efficiency, 85% to 90%. Thoroughly insulated. They are quality constructed of finest materials and priced right. These are the heaters that are meeting enthusiastic acceptance everywhere. Write for full information on this and other Auburn equipment.

DEPT. FO

OTHER AUBURN PRODUCTS

AUBURN AQUA-FINN BOILERS—ELECTRIC AND OIL WATER HEATERS—AUBURN OIL BURNERS—WINTER AIR CONDITIONING UNITS—DOMESTIC AND INDUSTRIAL STEAM AND HOT WATER BOILER BURNER UNITS.

AUBURN BURNER CO. Auburn, Ind.

Here's a SURE Business Builder for You!

Heat Condition Any Room to the Temperature Wanted with—

HEAT-TIMER

The

NEW THERMOSTATIC RADIATOR AIR VALVE

Room Temperature AUTOMATICALLY Controls Size of Heating Orifice

High Cost of Fuel makes it EASY to CASH-IN on this timely Fast-Seller!

1. Every one-pipe system is a prospect.
2. Hundreds of thousands of radiators need the thermostat action of HEAT-TIMER valves.
3. HEAT-TIMER valves cut heating costs because no steam enters radiators when heat is not wanted.
4. Now you can sell truly automatic heat with HEAT-TIMER.
5. Every HEAT-TIMER installation recommends additional sales.

Think of it! Now you can guarantee a warmer bathroom . . . cooler bedroom, or any variation of heat in rooms throughout the house. All you need do is replace ordinary valves with . . . HEAT-TIMERS.

Whether it's coal, coke, oil or gas burning; hand or mechanically fired.

HEAT-TIMER is the answer to room temperature control.

Write for Prices and descriptive folder.

REPLACE ORDINARY AIR VALVES WITH HEAT-TIMERS

. . . just set indicator to temperature wanted in each room — HEAT-TIMER does the rest.

NOW!

ZONE CONTROL

$4.95

PER RADIATOR

List Price

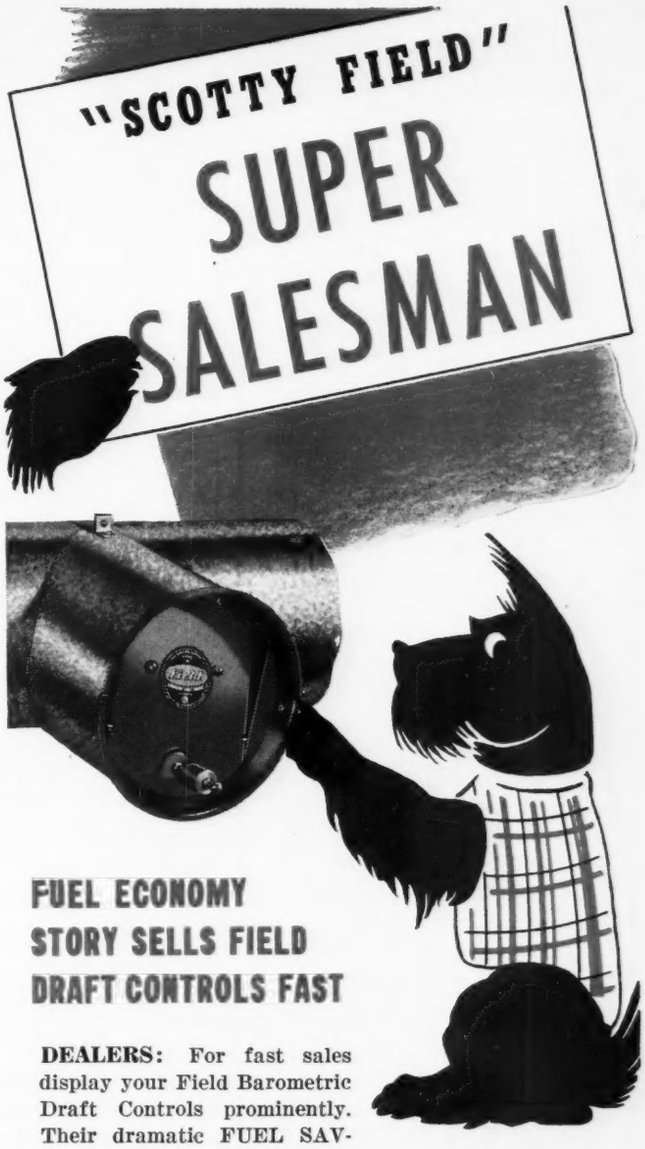
HEAT-TIMER CORPORATION

160 FIFTH AVENUE
NEW YORK 10, N. Y.

VISIT OUR **BOOTH 330** HEATING & VENTILATING SHOW INT. AMPHITHEATRE CHICAGO JAN. 24-28

fuel oil & oil heat

"SCOTTY FIELD" SUPER SALESMAN



FUEL ECONOMY STORY SELLS FIELD DRAFT CONTROLS FAST

DEALERS: For fast sales display your Field Barometric Draft Controls prominently. Their dramatic FUEL SAVING story makes them best-sellers, self-sellers!

A Field Barometric Draft Control improves the performance of any heating plant—provides for lower fuel consumption, increased safety, longer plant life. That's why dealers find it profitable and easy to sell the efficient, durable Field Barometric Draft Control. Write today for complete information on the Field Barometric Draft Control line.

On The Finest Heating Equipment Field Controls The Draft.

See our exhibit at the 9th International Heating and Ventilating Exposition, International Amphitheatre, Chicago, Jan. 24th to 28th. Exhibit No. 1221.

FIELD BAROMETRIC DRAFT CONTROLS

FIELD CONTROL DIVISION
H. D. CONKEY & COMPANY MENDOTA, ILLINOIS

AFFILIATES: CONKEY MATERIALS HANDLING DIVISION — CRANES—HOISTS

Field REGISTERED

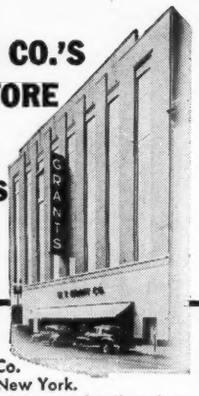
AFFILIATES: CONKEY BUILDING PRODUCTS, INC. — BRICK—TILE—STONE

BAROMETRIC DRAFT CONTROLS

W. T. GRANT CO.'S LARGEST STORE

heated by

Smith-Mills Boilers



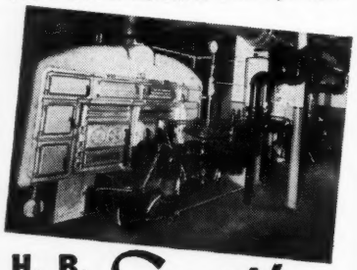
New W. T. Grant Co. Store in Syracuse, New York. Completely modern in every detail, to help customers *buy*, salespeople *sell*. Architect–P. A. Cunnius; Mech. Eng'rs. — Jaros, Baum & Bolles; Heat. Cont. — Edward Joy Co.

The W. T. Grant Co. chain sells millions of dollars worth of goods in an average postwar year! It isn't all gravy, however — overhead costs really eat into profits in these days of high break-even points!

But Grant management knows that *some* operating costs — like heating —can be cut to the bone . . . by selecting equipment that costs less to operate and maintain. That's why over 200 Grant stores have installed Smith-Mills *cast-iron* boilers. As a result, they're enjoying lower fuel bills, negligible maintenance costs— and better heating, to boot!

It *always* makes sense to specify Smith-Mills for commercial, institutional, and industrial installations. And when profits hinge on lowered operating and maintenance costs, it makes *double sense.*

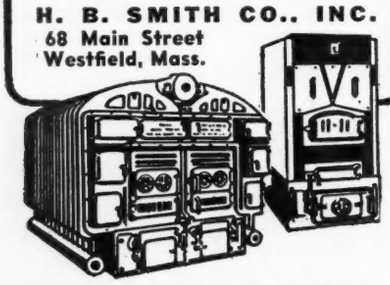
Boiler room of the new Grant Syracuse Store, heated by two 24 section No. 60 Smith-Mills boilers, which *fired* by gas, deliver a total of 12,000,000 b.t.u.'s per hour.



H. B. Smith

CAST-IRON BOILERS

H. B. SMITH CO., INC.
68 Main Street
Westfield, Mass.



Offices and Representatives in Principal Cities

radiator units also are pictured, along with capacities and measurements.

Two Promoted By Coleman To Regional Managerships

PROMOTION of Louis Marks and Lloyd McIninch to position of regional sales managers has been announced by The Coleman Co., Inc., Wichita 1, Kans.

Mr. Marks, who joined the organization in 1946 to organize and direct the company's sales training department, will be in charge of Coleman sales in Michigan, Indiana and Ohio, with headquarters in Detroit. Mr. McIninch, who will represent the company in Pennsylvania, New York, Maryland, West Virginia and the District of Columbia, will maintain headquarters at the company's Philadelphia office. He too joined Coleman in 1946 and has traveled the Eastern Seaboard territory in connection with the company's installation, service and sales training programs.

R. W. Carney, vice president and general sales manager, also announced the appointment of Harry G. Falter as jobber specialist, covering Texas and surrounding states.

Feature Space Heaters In Rheem Promotion Material

SALES PROMOTION MATERIAL, designed to enable dealers to tie in profitably with the national advertising campaign on its new space heaters, has been prepared by Rheem Mfg. Co., New York, N. Y. The campaign is aimed at the autumn upswing in home heating interest of small home owners and late-stayers at shore and mountain cottages.

A Rheem "design for better business" is timed to coincide with "frost tonight" weather forecasts. The sales package, furnished in a fire-department red accordion-type folder, shows oil and gas console heaters on the inside surfaces. It contains six pockets, holding complete product literature, point of sales pieces and information about cooperative direct mail and local advertising campaigns, tieing in with the company's national campaign.

Perfection Stove Launches Heater Advertising Campaign

AN AUTUMN campaign, launched by Perfection Stove Co., Cleveland, Ohio, will feature advertising on Superflex oilburning home heaters. Full page space will appear for three consecutive months in *American Magazine, Liberty, Look, Popular Mechanics, Popular Science* and others. In addition, full page advertisements will be placed in eleven farm magazines.

A schedule, calling for advertising in seventeen issues of *Retailing Home Furnishings,* is planned, plus a total of 39½ pages to be inserted in other trade publications. McCann-Erickson, advertising agency, is handling details of the campaign.

Sid Harvey of Maryland Enlarges Sales Space

LEASING of the store adjoining its present location at 347 Cedar St., Washington, D. C., has doubled the present space occupied by Sid Harvey of Maryland, according to William C. Archer, president. Continued heavy demand for Harvey repair and replacement oilburner parts far beyond expectations when the office opened in April necessitated acquisition of additional space.

U. S. Radiator Book Gives Prices and Data

A TRADE PRICE and data book, announced by United States Radiator Corp., Detroit 31, Mich., covers its complete line of boilers and radiators. The 32-page book contains pictures and diagrams, with contents including sections on general information and terms and I-B-R ratings. Products covered include heating boilers, boiler-burner units, oilburners, combustion chambers, hot water supply boilers and radiators.

The booklet features pre-punched pages to fit three-ring binders, a cover page index and the name of each unit listed on the top outside margin of each page. A single page is devoted to the data for each product.

International Nickel Book Lists Standard Products

STANDARD SPECIALTIES, booklet offered by International Nickel Co., Inc., New York 5, N. Y., to persons concerned with purchase and product specification, is the first complete compilation of products made of Monel, nickel or Inconel, available from stock or standard designs. About 200 standard products for corrosive and high temperature service are listed, including thermostat parts.

fueloil & oil heat

BOOK SHELF

Here's 7 on it YOU May Have Missed

BEACON BOILER BOOK
Only complete, comprehensive boiler book. New and revised edition. Embraces ratings and specifications of every boiler built in U. S. Handy size, 8 by 11 inches.
$3.

BETTER OILHEATING
Covers trouble shooting, field repairs and efficiency tests for oil saving in a collection of articles based on practical experience. For study or reference. 110 pages, 140 illustrations. Size, 8 by 11.
$2.

THE SELLING MAN
Specialty salesmanship in our day with emphasis on burner selling by W. A. Matheson, of Eureka Williams Corp., long a leading figure in oilheating industry. Blue cloth binding, 6 by 9, 260 pages.
$5.

CATALOG OF OILBURNER MANUFACTURERS
350 names of manufacturers of all types domestic, industrial, and commercial conversion burners, boiler and furnace burner units, space heaters, cooking equipments, water heaters, etc. Also 400 trade names. Gives location of company, names of principal executives, and list of products (not specifications). 20 pages, 7″ x 10″. All paper. No covers.
$2.

BASIC SERVICE TEXT FOR PRESSURE TYPE BURNERS
This manual was prepared by G. T. Kaufman, technical secretary of the Oil Heat Institute of America, and is intended for basic training of installers and service men in residential oil-heating. It is also a useful reference source for those who have completed the training courses. A good, elementary book. Contains quiz questions to brush up with. Pocket size. 216 pages. Paper covers.
$2.

REDUCING FUEL OIL BILLS
This booklet will help you show home-owners, in a language they can understand, how you can save them money. Minimize your customers' oil bills and make a real profit with the right kind of service.
50c

OIL HEATING HANDBOOK
Revision of famous text by Han A. Kunitz giving complete data on all phases of oilheating. An indispensable guide to sellers and installers of equipment. Many illustrations, charts, diagrams and graphs. Lists types of service troubles and includes estimating tables. 456 pages.
$5.

Because of the thousands of small orders we receive we ask that cash, stamps, money orders or checks be sent with all orders.

FUELOIL & OIL HEAT

232 Madison Ave. New York 16, N. Y.

How to Merchandise HUMIDITY THIS WINTER ... and Make REAL Money!

Maid-O'-Mist AUTO-VENTS $5.00 Each - RETAIL
(You Make 40%)

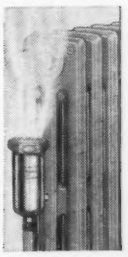
USE THIS ATTRACTIVE DISPLAY: AUTO-VENTS come to you 6 in this counter display carton. If you have a sales room, surprising how much business this display will account for; or put the carton in your window, or in some other place that gets lots of traffic.

Nationally Advertised *in Better Homes & Gardens and House Beautiful*

ORDER NOW to Meet Great Public Demand

Winter humidification at low cost—*that's what the public wants!*

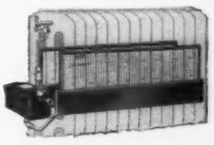
Every low-pressure, gravity steam-heated home, apartment, office, etc., in your territory is a "red hot" prospect for Maid-O'-Mist AUTO-VENTS at only $5 each—*one on each radiator.*



Showing Maid-O'-Mist AUTO-VENT installed on steam radiator.

The AUTO-VENT provides ample humidity for 2,000 cu. ft. space—entirely AUTOMATIC—no parts to need attention, rust or corrode. Also acts as *quick venting air valve.*

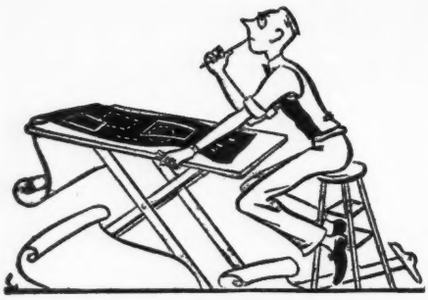
To install, merely remove air valve from each radiator and replace with AUTO-VENTS—few seconds' job.



We also make Automatic Humidifiers for hot water radiators, $10 and $12 each retail—also Automatic Humidifiers for warm-air furnaces.

With proper promotion, hundreds of AUTO-VENTS can be sold in your community this season. *Try them out!* If your jobber can't supply you, write us.

MAID-O'-MIST INC.
AUTOMATIC HUMIDIFIERS FOR ALL TYPES OF HEATING SYSTEMS
3221 N. PULASKI RD.
CHICAGO 41, ILLINOIS

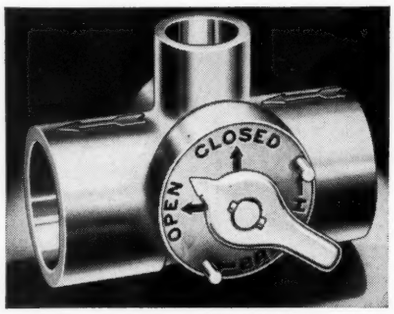


New Products

Thrush Supply Tees For Copper Pipe Jobs

BRONZE adjustable supply tees with solder connections for copper one-pipe hot water heating installations have been announced by H. A. Thrush & Co., Peru, Ind. Available in four sizes—¾ in. x ¾ in. x ½ in., 1 in. x 1 in. x ½ in., 1¼ in. x 1¼ in. x ½ in., and 1½ in. x 1½ in. x ½ in.—they supplement the cast-iron original model introduced about a year ago. They provide the same close control of water flow through each radiator, and resultant balanced heating.

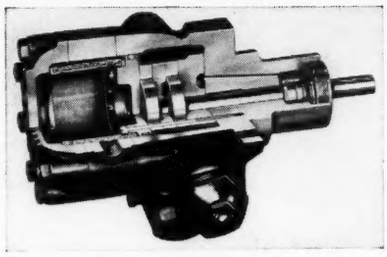
With the tees any amount of flow can be diverted through each radiator, with only one adjustable tee needed for each up-feed radiator. Restricting branch flow increases flow through the main and shutting off a radiator opens the main flow completely. Use of the



tees throughout an installation enables each radiator to be maintained at the same temperature, or certain rooms can be kept at lower temperatures, if desired.

Sundstrand Model R Pumps Are Self-Purging Units

MODEL R two-stage fuel units, developed by Sundstrand Machine Tool Co., Rockford, Ill., feature two sets of Rota-Roll pumping members and are self-



purging. The first set does the suction pumping, drawing oil from the inlet port into a reservoir which is open to the return line. The second pumping stage, the pressure cycle, is supplied from the bottom of the reservoir. Any air drawn into the system by the first pumping stage escapes from the top of the reservoir and into the return line. Since the first stage pumps more oil than the second, the reservoir is kept filled, eliminating cavitation or squawking sound on high suction from long lines or high lifts.

The units are recommended for installations having vacuum requirements up to 25", or where noisy operation is extremely objectionable. Intended for two-pipe installation, they can be converted in an emergency for a one-pipe installation, in which case they function

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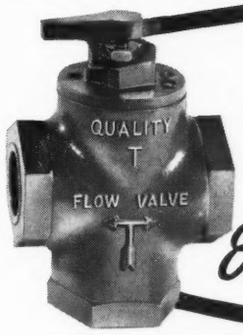
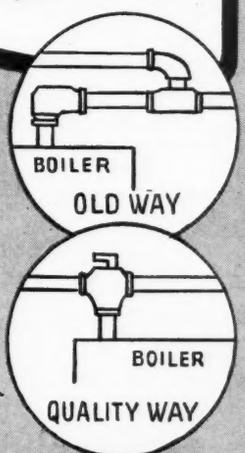
- Precision tooled by master craftsmen.
- Most simplified valve on the market.
- Special, "easy-to-read" valve opener.



You Can Install QUALITY "T" FLOW CONTROL VALVE in One Easy Operation

Dollars ahead! Customer satisfaction! *Actual time-saving on the job!* That's what you get with the new QUALITY "T" FLOW, 2-DIRECTIONAL, CONTROL VALVE. One simple installation eliminates old style L's, T's, short lengths of pipe. Durably constructed for long life and trouble-free efficiency.

- T-Joint principle affords *direct*, uninterrupted 2-directional flow. Neater, more compact, more professional appearing job.
- Available in sizes 1", 1¼", 1½" and 2".



Quality valves easily obtainable through local jobbers

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MANUFACTURERS
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More than "Just an Oil Burner"...

in this carton!

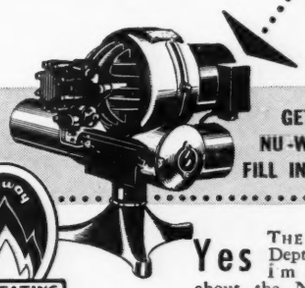
There's a lot more to the job than just getting a good product in the hands of the distributor. That's important but, it's only the beginning . . . at least that's the feeling at the Nu-Way Corporation. Just check over the Nu-Way distribution helps listed below. These things all may not be visible in the carton but they're a mighty important part of every burner. If you're not getting this kind of help, use the coupon below to investigate the Nu-Way Distribution Plan. No obligation!

QUALITY PRODUCT—Nu-Way Oil Burners are constructed of top quality materials to exact specifications based on 27 years experience in furnishing automatic oil heat *exclusively*.

EXCLUSIVE SALES FEATURES Only Nu-Way Oil Burners offer *Patented* Nozzle Shield and *Patented* Positive Air Control . . . that increase burner efficiency, reduce service needs . . . real sales clinching features.

NATIONAL ADVERTISING — Demand for Nu-Way is stimulated by regular schedule of advertising in Better Homes & Gardens, American Home, House Beautiful, House & Garden.

LOCAL SALES HELPS — Nu-Way distributors get newspapet mats, consumer booklets, direct mail pieces, catalogs and a brand new service manual and instruction book plus many other helps.



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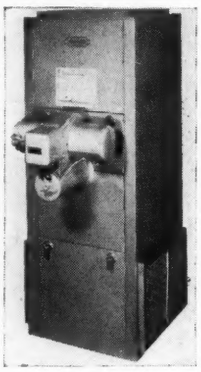
as single stage units.

Two models available, R-3 and R-4, have maximum nozzle and strainer capacities of 6 and 10 gph, respectively. Either can be furnished with right or left hand rotation and right or left hand nozzle port.

Fluid Heat Furnace Unit For Small Home Installations

MODEL RU-65 warm air furnace, offered by Fluid Heat Div., Anchor Post Products, Inc., Baltimore 24, Md., develops 65,000 Btu/hr and has been designed especially for application in small homes. Measuring 5′ high, the unit provides all elements of forced warm air heating, featuring a circulating blower than can be adjusted for intermittent operation or constant air circulation.



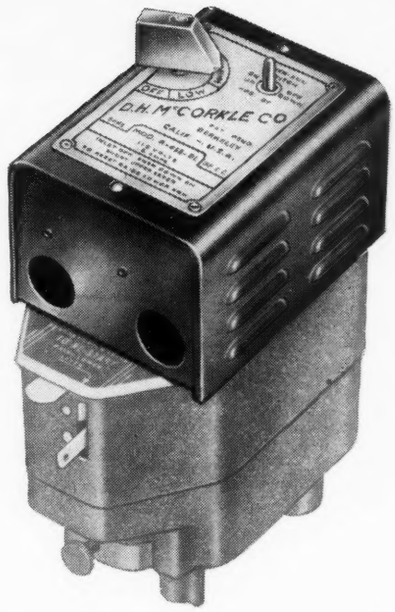
It is equipped with a Fluid Heat pressure atomizing burner and permits return air to be brought in at either side of the unit, or up through the floor. Installation is possible either in basements or utility rooms. Unit is finished in metallic gray.

Field Control System For Handfired Furnaces

FIELD FUEL SAVING SYSTEM, announced by Field Control Div., Mendota, Ill., is a completely packaged automatic control system for handfired furnaces. It includes a Barocheck draft control, a pre-calibrated Field thermostat with "heat-anticipator" and a damper motor, incorporating built-in limit control, Stoke-Switch to hold draft open while furnace is being charged, booster fan switch, motor and transformer. Plug-in installation simplifies application.

McCorkle Unit Regulates Air for Vaporizing Burners

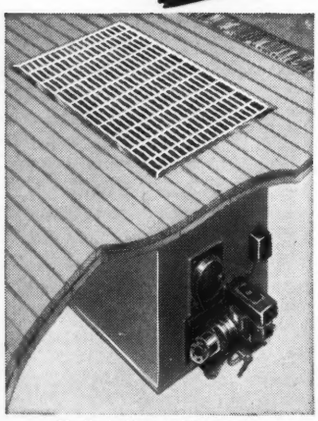
A CONTROL, the R-458, manufactured by D. H. McCorkle Co., Berkeley, Cal., permits regulation of air supplied to forced draft vaporizing burners on low and medium fire through two independent circuits which regulate motor speed.



Adjustments are made on each individual installation and the control can be added to existing jobs or supplied with new equipment. It is designed for 110-115 volt circuits, with line and motor connections made to one terminal panel.

R-458, measuring 3⅞" x 2¾" high, fits on top of standard oil level valves. Its selector switch shaft becomes a unit

Kresky Superiority Can Be Demonstrated



The Kresky Evenheat Floor Furnace

Only Kresky Dealers can give 3-Dimension Demonstrations. To many of your customers, terms as BTU output, thermal efficiency, and other phrases are a jargon that goes over their heads. But everyone understands and appreciates the superiority of the Kresky burner because of the unique Kresky 3-dimension demonstration method which lets your customers *HEAR, SEE* and *FEEL* the advantages of the Kresky patented burner. The result . . . more sales per given number of prospects, faster sales, more profitable sales.

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Kresky OIL BURNERS

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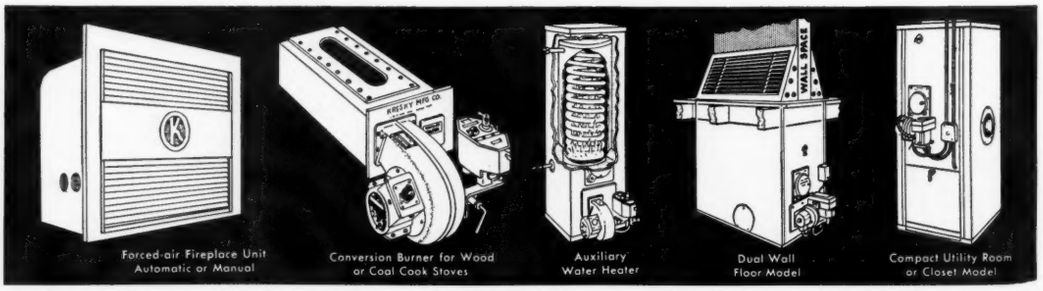
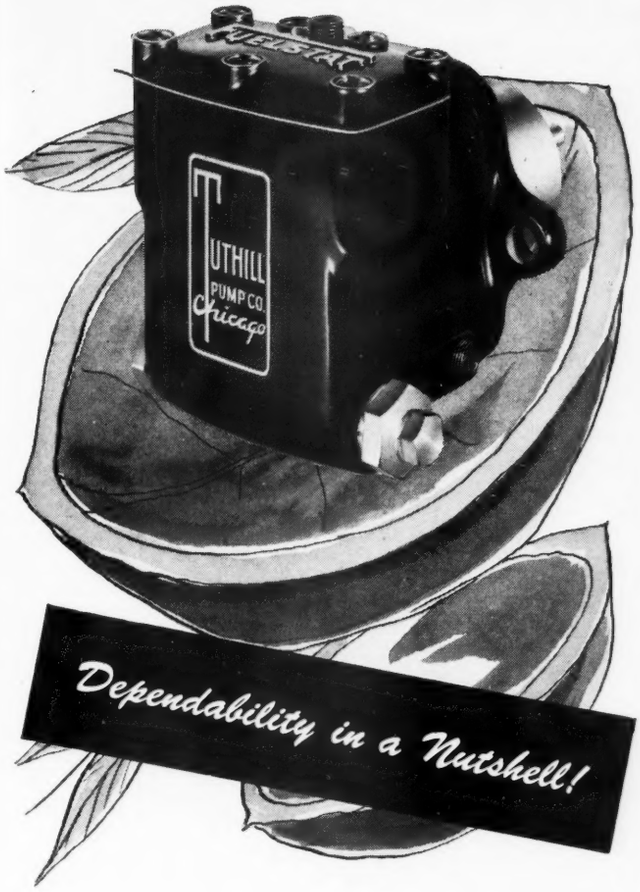

Forced-air Fireplace Unit Automatic or Manual
Conversion Burner for Wood or Coal Cook Stoves
Auxiliary Water Heater
Dual Wall Floor Model
Compact Utility Room or Closet Model



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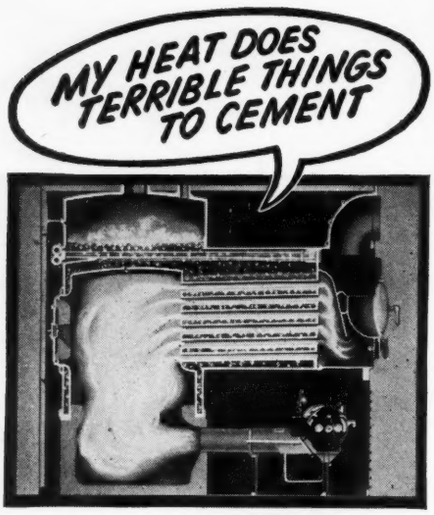
fuel oil & oil heat



When you seal combustion chambers with Rutland Retort Cement, you can depend on them to stay fire-tight.

Rutland Retort Cement is ideally suited for bonding fire-brick. Soft enough to work easily, but has enough body to be efficient. Economical to use, because it has more bulk than many other cements.

4 Other Rutland Products That Save Time and Trouble

Rutland Furnace Cement—**For making joints smoke-tight and gas-tight when installing or resetting hot air furnaces and oil burning equipment. Provides 10 to 15% more bulk than many cements and does not fall or crumble as metal heats and cools.**

Rutland Asphalt Paint—**Genuine Gilsonite Asphalt base. Easy to apply. High heat-resisting qualities. Drys in about 4 hours.**

Rutland Pipe Joint Cement—**Seals joints tightly. Lasts indefinitely. Never becomes so hard that pipes cannot be disjoined easily.**

Rutland Concrete Patcher—**For repairing cellar walls and floors. Easy to use; just mix with water.**

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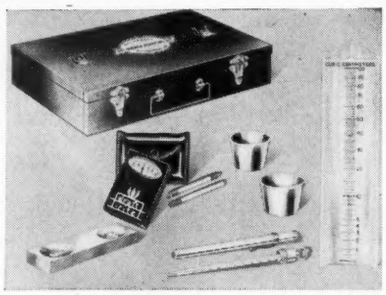
with the metering stem of the level valve, synchronizing motor speed changes with oil being fed to the burner. An over-run switch permits operation of the blower motor at full speed whenever desired, regardless of the metering valve position.

Bacharach Kit For Pot Burner Adjustment

A KIT, containing all necessary equipment for adjusting vaporizing, pot-type oilburners, is a new product announced

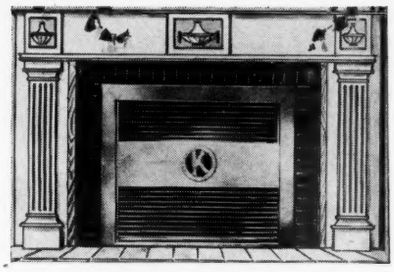


by Bacharach Industrial Instrument Co., Pittsburgh 8, Pa. The entire kit is packed in a compact carrying case, furnished with instructions.

Contained in the kit is a Draftrite gauge to determine that there is an adequate up-draft in the flue and for adjusting the draft regulator as needed; a cross test level, designed for use in limited space, to facilitate leveling the burner pot, oil flow control and draft regulator. An oil flow gauge, also furnished, measures the amount of oil flow to the burner pot. The well of the plastic graduate is wedge-shaped and its scale is on a flat surface, readable accurately in ¼ cc in the lower range and measuring up to 100 cc. Two oil collecting beakers for catching oil during the flow test are aluminum cups designed to slide under the tee of the burner feed or under the oil control valve. A mercury thermometer, with a range between 0 and 220° F. completes the contents of the kit.

Kresky Furnace Unit For Fireplace Installation

A FIREPLACE FURNACE, developed by Kresky Mfg. Co., Petaluma, Cal., is designed to convert any fireplace into a source of heat provided by forced warm air. Made in two sizes, one delivers up to 40,000 Btu/hr, the larger, up to 60,000. Dimensions of No. 1 model are 26" high, 28" long and 18½" deep, with its front panel covering an opening up



to 29" high and 35" wide. Model No. 2, the larger unit, measures 29½" high, 34" long and 18½" deep, with a front panel capable of covering an area up to 33" high, 41" wide.

The unit's casing fits into the fireplace

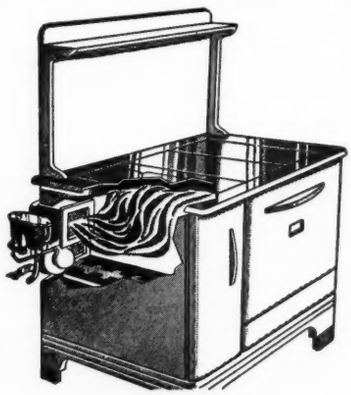
Profits!

Through the

SUPER-THERM

Combination

OIL BURNER



SALES prospects for this modernizing, easily installed oil burner are *all* owners of gas, wood and coal stoves and ranges. Super-Therm fits any size stove, front or rear —will last a lifetime—will not soot or smoke—has automatic safety features. Write now for details and *dealer profit* facts.

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make EXTRA PROFITS on every fuel oil sale!

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Solder Seal FUEL OIL TANK SOLVENT removes fuel-wasting soot, dissolves sludge, improves combustion. Keeps tanks, lines, burners CLEAN.

Don't miss this extra-profit opportunity! Write us for complete details.

SOLDER SEAL **RADIATOR SPECIALTY COMPANY**
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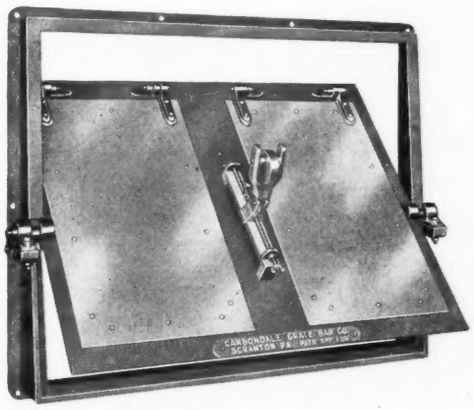
CARBONDALE BAROMETRIC DAMPERS

Easiest to Install • Simplest to Adjust



Get the Rigidity, Accuracy, Durability, Instant Action of Carbondale Barometrics. The only Barometric with in-built relief gates. Available in all sizes from 18″ x 14½″ to 72″ x 48″. Larger sizes built to order.

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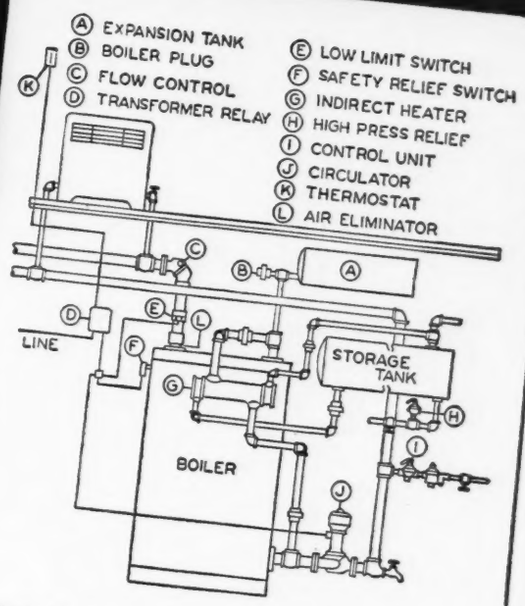
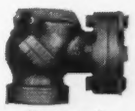
PICTURE OF HOT WATER HEATING AT ITS BEST



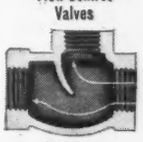
Typical installation diagram of Triplex flow controlled, two-pipe up-feed hot water heating system with indirect domestic hot water.

Ease of Installation and Dependable Operation Make *Triplex* FIRST CHOICE

Direct Drive Circulators



Flow Control Valves



One-Pipe Distributors

Indirect Heaters

If you really want to profit from the rapidly growing demand for hot water heating, sell Triplex Flow Control Systems, too. The same Triplex units that assure *hot water at its best* in homes can also be applied to large installations by merely increasing the number or size of individual operating units. Hot water is automatically circulated—abundant heat supplied the radiators instantly, whenever and wherever needed. Thanks to complete standardization, advanced design and precision construction of all Triplex products, installations can be made quickly and easily. Best of all, operation is so trouble-free and dependable that service calls are few and far between. Yes, *Triplex means hot water at its best* . . . for everyone concerned. Push it for conversions as well as new installations. You'll win both ways. Write today for latest catalog.

Triplex
HEATING SPECIALTY CO., INC.
PERU, INDIANA

In addition to units illustrated, the Triplex line includes—Direct Drive Horizontal Circulators, Indirect Drive Circulators, Relief and Pressure Reducing Valves, Expansion Tanks, Air Eliminators, Water Mixing Valves, Air Vent Valves, Tankless Heaters, Control Units, Electrical Controls, Barometric Draft Dampers, Sump Pumps.

SEE YOUR WHOLESALER TODAY

opening, with an oval hole on top provided for installation of a stovepipe up the fireplace chimney. A sub-assembly, containing the burner, fans and heat elements, fits into the casing on flanged grooves. A set of louvres in the lower half, and another set in the upper half of the front panel provide space through which cold air is drawn for combustion and heated air distributed by a circulating fan. The unit also can be used effectively where a wall recess is available.

Conversion Oilburner Made By Armstrong Furnace Co.

A GUN-TYPE conversion oilburner now is being produced by the Armstrong Furnace Co., Columbus, Ohio. An exclusive feature is the "turbo-regulator," described as a device to combine turbulation and air control so that maximum efficiency is obtained throughout the entire firing range. Blower housing of the burner is made of deep-drawn, welded steel, providing smooth internal and external surfaces for quiet operation and a modern functional appearance.

Air control openings are located in the high pressure air stream beyond the blower to eliminate clogging of air control openings with dirt or line.

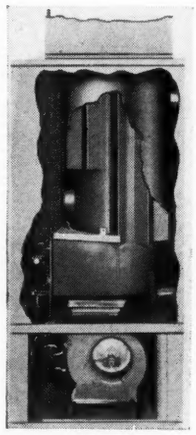
Tru-Heet Distributing Quigley Combustion Chamber

INSULBRIX, insulating fire brick, is used in the Quigley combustion chamber, offered by Tru-Heet Co., Trenton 10, N. J., sole distributors for the chambers made by Quigley Panel Constructions, Inc. The brick are fused on a Quigley panel, making the walls of the chamber slightly more than 2" thick, with all corners mitered. Four sizes are provided, ranging from ¾ to 3 gph, furnished with a 5" burner tube opening. The hole can be enlarged by sawing or filing.

Building the combustion chamber is represented as being easy, and quick. It consists of two pieces for the floor, two sides, a rear and a front wall. Laboratory and field tests were conducted successfully before the chamber was marketed, according to the manufacturer.

Gillen High-Boy With Constant Air Circulation

A HIGH-BOY model forced warm air furnace recently announced by J. L. Gillen Co., Dowagiac, Mich., is fired with a vaporizing oilburner and features continuous air circulation accomplished by a three-stage flame controlled by thermostat. Modulated pilot, medium and high flame are provided, with the compartment for the unit's 13" burner and controls mounted as a single unit



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PROFIT
100,000 highly satisfactory installations *plus* constantly increasing contractor demand mean *more sales for you.*

QUALITY
Highest commercial standard underwriters' and F.H.A. specifications. All parts meet rigid inspection and exacting factory tests.

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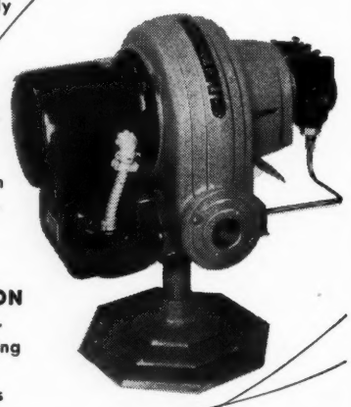
Burns catalytic oils *completely.*

RANGE OF INSTALLATION
¾ gal. to 20 gal. capacity.

Build your automatic heating business on a sound basis!

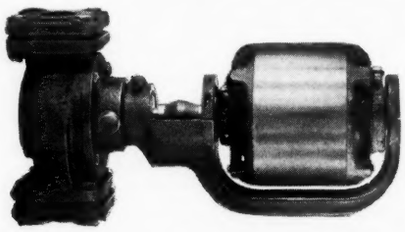
Write *today* for full details on this outstanding, profitable oil burner.

NOTE: Several territories available



RADIANT UTILITIES CORP.
Brooklyn 14, N. Y.

GLOBE | Hot Water CIRCULATORS



Substantial Savings NOW!

Rugged, perfectly engineered and made of *top quality* materials. A new, low price . . . lower than other circulators made of the very same materials.

QUIET! TESTED! GUARANTEED!

Bearings
Extra long, oil impregnated bronze.

Water Seal
Patented, rotary type —carbon on bronze.

Motor
Westinghouse or equivalent. 1/6 hp.

Coupling
Neoprene — flexible.

Manufacturers of Low Water Cut-Offs and Controls for a Quarter Century.

GLOBE CONTROLS CO.
81 WARREN ST. NEWARK 2, N. J.

EXCLUSIVE TERRITORIES AVAILABLE

accessible for servicing. Combustion blower and circulating blower both are rubber-mounted.

The High-Boy model, a companion to the firm's Low-Boy model, develops a gross output of 50,000 Btu/hr and measures 25" in width, 31" long and 66" high. Included in its Furnace Master constant level oil control is a built-in antiflooding device, blower switch and limit control.

Tokheim Device Records Degree-Days Automatically

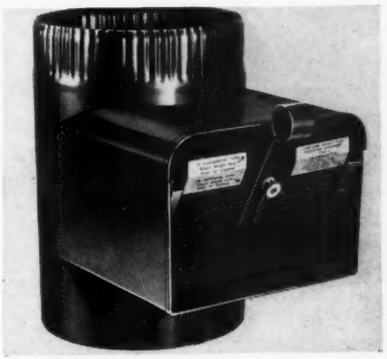
MODEL 90 automatic degree-day recorder, manufactured by Tokheim Oil Tank & Pump Co., Fort Wayne, Ind., eliminates the possibility of human error in compiling degree-day information. When installed in a dealer's office, it automatically counts, records and accumulates degree-days as they occur in the dealer's own operating area. Model 90 combines an outside-mounted temperature bulb, a recording chart and a totaling meter.

Tokheim announces also the model 92 K-Factor slide rule calculator. It requires only one hand to operate and from a single setting gives both K-Factor and degree-days to be accumulated for the next fueloil delivery.

Skuttle Draft Control For Horizontal, Vertical Flues

TYPE U WINDMASTER draft control, announced by Skuttle Mfg. Co., Detroit 7, Mich., can be used with horizontal or vertical flues. Changing from horizontal to vertical pipes, it is necessary to remove only the adjusting nut, shift the counterweight to the vertical stud and install. The shank of the counterweight is calibrated to illustrate proper position for either installation. Windmasters are available in models and sizes for heaters and furnaces.

Closed position of the vane is at an angle to the axis of the flue furnishing a larger effective area and because of its smaller rotative arc it is possible to balance the vane more effectively through this smaller angle in moving from closed



to open positions. The control has a square or rectangular body, which, with its angle-mounted vane, combines to provide more intake area.

Newark Offers Combined Feeder and Low Water Control

TWO MODELS of combination liquid level controls and automatic feeders have been announced by Newark Controls,

DO ALL SIX CORRECTLY!

DWYER TRANSPARENT COMBUSTION TEST SETS

1. Determine proper CO_2 content
2. Check for air leaks
3. Adjust air controls
4. Know draft conditions
5. Level burners and controls
6. Find stack temperature readings

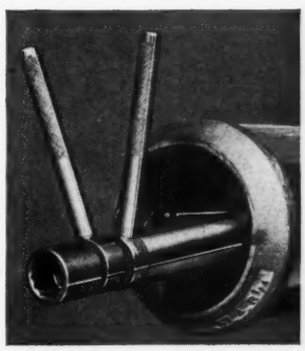
DWYER Combustion Test Set includes CO_2 Indicator, Visi-Draft Gage and Level and Stack Thermometer... every instrument necessary to do these jobs ACCURATELY. Durable carrying case, all accessories and instructions.

DWYER Bulletin 220 sent on request - Describes this set and other styles.

F. W. Dwyer Mfg. Co.

315 SOUTH WESTERN AVENUE, CHICAGO 12, ILLINOIS

The PERFECT TOOL for the OIL BURNER SERVICE MAN



The Ideal NOZZLE EXTRACTOR

Makes the Nozzle Easy to Replace and Remove

This special quality tool is based on a patented principle which avoids possibility of damage—breaking porcelain and bending electrodes—which commonly happens when ordinary wrenches are used. The Ideal NOZZLE EXTRACTOR makes possible the removal and replacement of the nozzle without removing the burner assembly, by reaching in through the fire door. Saves time—can be done in 40 seconds. Three 12-point socket wrenches in one compact tool; socket on reverse end can hold regular screw-type nozzle tip firmly while taking it apart or assembling. A worth-while Christmas gift for your service men.

WRITE FOR COMPLETE INFORMATION

BOSTON MACHINE WORKS COMPANY

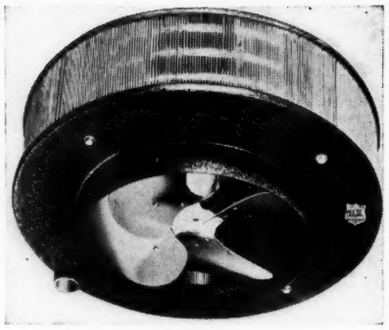
Oil Heating Supplies Division, 7-17 Willow St., Lynn, Mass.

Bloomfield, N. J. One model, 771BS, is used where 2½" boiler tapping for the control is at the normal operating water level. The other, model 772, is the gauge glass type, furnished complete with quick hook-up fittings. The complete feeder system consists of a float control, an electric solenoid valve and a strainer, with the float control installed at the boiler or tank, the solenoid valve and strainer in the feed pipeline.

The control's all bronze construction resists corrosion and its self-cleaning design prevents sediment collection. Combinations of the units, with external control circuits, can be arranged to accomplish numerous liquid level control applications. Special designs and circuits can be built to specification.

U. S. Radiator Offers Two Unit Heater Models

ADDED TO THE LINE of United States Radiator Corp., Detroit 31, Mich., are horizontal and vertical unit heaters, made for either steam or hot water heating systems. To be marketed as U. S. unit heaters, both types feature broad blade propeller fans and have motors



resiliently-mounted in rubber.

The horizontal model, which can be mounted along a side wall or suspended from the ceiling, is available in sixteen sizes, heat output ranging from 24,000 to 240,000 Btu/hr. Intended for ceiling mounting where it is desired to have heated air projected downward, the vertical model is offered in twenty-eight sizes, heat output ranging from 37,200 to 492,000 Btu/hr.

Artisan Products Bodies For Service Truck Chassis

TWO MODELS of Craftsman all steel service bodies have been announced by Artisan Products, Inc., Cleveland 11, Ohio. One model is 75" long for installation on ½ ton chassis; the other, 90" long for ¾ to 1 ton chassis. Standard equipment furnished with both includes 12 gauge checker plate floor, key locking handles, two shelves on the right side and three rope hooks on the left side of the vertical compartment.

Of all steel construction, the bodies are designed to provide ample compartment space for service tools and equipment and include a large bulk loading area between the side compartments for larger materials and equipment.

Cleatformer Announced By Lockformer Company

A NEW CLEATFORMER, developed by the Lockformer Co., Chicago 50, Ill., rolls both an "S" cleat and a standard drive cleat. Particularly useful in duct work fabrication, the new Cleatformer provides a 180° radius hem on both edges of the "S" cleat to impart considerable stiffness and permit the use of lighter gauge material, without sacrificing strength or rigidity. Represented as being considerably faster than other methods, an 8′ seam or cleat can be rolled in approximately 20 seconds.

SUBSTANTIAL PROFITS for YOU—
Cleaning Furnaces with the GRAND RAPIDS De Luxe FURNACE CLEANER
You can put furnace cleaning on a money making basis by using a Grand Rapids Furnace Cleaner. High velocity suction scoops up all deposits of soot, ashes and carbon, cleaning the heating plant and re-establishing full efficiency. Special attachments clean flues, radiators, right angle turns and other hard-to-reach areas. The job is done quickly and completely. Customers are highly satisfied.
The Grand Rapids DeLuxe Furnace Cleaner is also your "in" for more than cleaning profits. By checking over and inspecting the heating plant as you clean it you are in a position to make timely recommendations for new equipment or repairs. This means better service for customers . . . more profits for you.
Write for complete information and prices today.
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CHRISTMAS GREETINGS
from the makers of
SPARK OIL BURNING HEATERS
SPARK STOVE CO., INC.
2619 East 12th Street • Oakland, Calif.

T-23 OIL HEATING PACKAGE SET

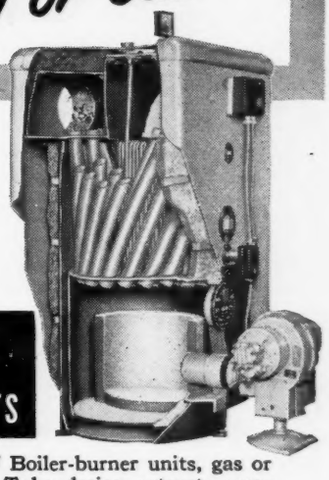
Automatically Yours For Better Temperature Control

GENERAL CONTROLS
801 ALLEN AVENUE GLENDALE 1, CALIF.
FACTORY BRANCHES: BIRMINGHAM (3) BOSTON (16) CHICAGO (5) CLEVELAND (15) DALLAS (2) DENVER (10) DETROIT (8) HOUSTON (2) KANSAS CITY (2) NEW YORK (17) PHILADELPHIA (40) PITTSBURGH (22) SAN FRANCISCO (7) SEATTLE (1) • DISTRIBUTORS IN PRINCIPAL CITIES

MANUFACTURERS OF AUTOMATIC PRESSURE, TEMPERATURE & FLOW CONTROLS

WRITE FOR FREE DESCRIPTIVE LITERATURE

Finer Performance with Oil or Gas



ASME CONSTRUCTION

EXCLUSIVE SPIRAL TUBES

Mt. Hawley BOILER-BURNER UNITS

104,000 to 1,043,000 BTU Boiler-burner units, gas or oil-fired. Exclusive Spiral Tube design extracts more heat, reduces stack temperature by 100°. 7 sizes—3 domestic; 4 commercial. Shipped assembled, just remove crate. Easy to install. All sizes available galvanized for water heating. Write for literature.

MT. HAWLEY MFG. COMPANY
3, Mt. Hawley Airport, Peoria, Illinois
Manufacturers of a complete line of conversion oil burners—0.65 to 20 G.P.H.

This booklet ● *Proves there's* NO MYSTERY *in pot-type* BURNER SERVICING

YOU'LL be face to face with vaporizing burners a little more frequently hereafter as sales of these units have been rising. We've discovered that there are many service departments which are not sufficiently familiar with them. That's why we got a veteran service manager to tell you about the wrinkles and angles in these pot-type units. In the 16-page booklet

Vaporizing Burner Service

you get the low-down in 4 articles that have appeared in Fueloil & Oil Heat.

When ordering small quantities, please attach check or money order. If interested in large quantities, we'll be glad to quote discounts. **50¢**

HEATING PUBLISHERS, INC.
232 Madison Ave., New York, 16

Now Available!

NEW COMBUSTION HEAD

DESIGNED AND PATENTED BY THE SHELL DEVELOPMENT CO.

Two important advantages for manufacturers whose pressure type burners are equipped with the new SHELL DESIGN COMBUSTION HEAD—

1 Economy of fuel. Field tests indicate 20% and more oil saving. A CO_2 as high as 15% is obtainable with no smoke, even when using 100% catalytic fuel oil. The oil situation makes such economy a positive necessity, and the CUSTOMER SATISFACTION produced is a real SALES PROMOTER.

WE SOLICIT INQUIRIES FROM MANUFACTURERS OF OIL BURNERS

2 Replacement of obsolete, inefficient burners by burners equipped with the NEW SHELL DESIGNED COMBUSTION HEAD will be quickly paid for out of oil savings!

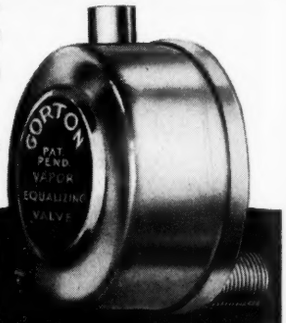
Manufactured by
MODERN DIE AND MACHINE COMPANY
166 PLEASANT STREET, BOSTON 25, MASS.
Under license from the Shell Development Company

How I get rid of "cold room" problems!

"The Gorton System of Vaporizing and Equalizing existing steam heating systems is a sure CURE for COLD ROOMS . . . Whenever my customers complain of uneven heat distribution I install the GORTON SYSTEM . . . It can be depended on to give even heat distribution to every room."

Says Mr. Charles J. Goyert, Pres.
Chas. J. Goyert & Co.
White Plains, N. Y.

GET THE FACTS
Write for BULLETIN No. 116DA.



GORTON HEATING CORPORATION
Manufacturers of High Grade Heating Equipment Since 1887
CRANFORD NEW JERSEY

Everyday Snags

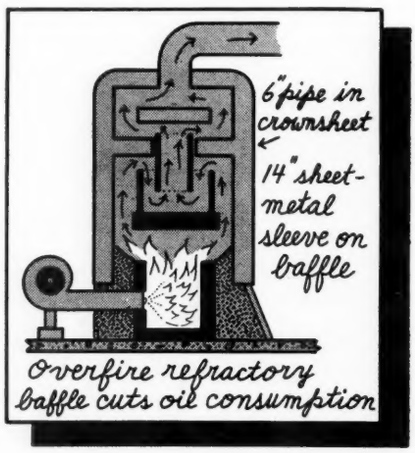
Downdraft Idea

A CO_2 and stack temperature enthusiast reports that he has cut the stack temperature of an installation from 875° to 560°, raised the CO_2 from 7¼% to 11½%, and reduced the oil consumption by 36% through use of the downdraft idea shown in the diagram.

First he fitted a piece of heavy-wall 6" pipe into the center crownsheet opening of this 20" diameter five-section cast-iron boiler, which was fired 1.35 gph to carry a load of 260 sq. ft. of standing steam radiation. Steel rods slipped through holes close to the top of the 6" pipe hold it in place. Furnace cement was used to seal spaces between the pipe and the crownsheet.

Second, he arranged to install a standard over-fire baffle. He did not put this in place, however, until he had obtained the material for the next step.

Third, on top of this baffle, he used part of a stainless steel firebox to form a 14" sheetmetal sleeve which, though protected by the over-fire baffle from radiant heat of the flame, still would become red-hot. This sleeve is 10" high. Between the top of it and the crownsheet is a 4" space. The 6" pipe is overlapped by the stainless steel sleeve by 4½".



Fourth, after trying four different nozzles and checking on the combustion results and the rates at which the radiators heated, he wound up using a 1.0 gph nozzle and 140 lbs. atomizing pressure.

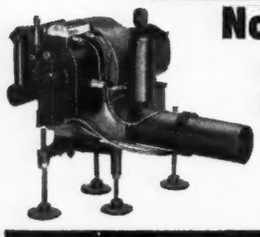
"Don't think that you can alter a job in this way in one afternoon," cautions the combustion expert. "My helper and I spent a whole day arranging the pieces that went inside the boiler. Six hours of the next day went by while I tried different nozzles and higher and lower atomizing pressure, made combustion tests, and checked on the rate the radiators heated with the boiler fired at about 1.0 gph. If it were not that this boiler heats my own home, I wouldn't have bothered to improve it. I'd have sold a new one to replace it."

* * *

Checking Motors

Encountering more motor trouble than he ever had before, one burner dealer now uses a voltmeter, an ammeter, and a tachometer for on-the-job check-ups on motor load and performance. The voltmeter makes certain that unusually high or low voltage is not favoring or penalizing a closely-loaded motor. The ammeter reading on a trouble job is compared with readings taken on motors identically loaded and

★ RAYFIELD AUTOMATIC ★



No. 5 OIL BURNERS

REDUCE HEATING COSTS...
INCREASE YOUR PROFITS

Burn No. 5 heavy fuel oil. Self-contained, all electric. Self-lubricating. Many new exclusive features. Write for full details.

GOOD TERRITORIES OPEN

C. L. RAYFIELD CO.
2010-18 S. Halsted St., Chicago 8, Ill.

NEW! Rayfield HEAT RECLAIMER

Saves heat now wasted going up the chimney! For any heating system 5" to 10" smoke pipe, whether hand or automatically fired, regardless of type of fuel used.

FULL AUTOMATIC OPERATION
BY SELF-CONTAINED THERMOSTAT

• LOW IN PRICE • 1-HOUR INSTALLATION

Available to All Dealers

Write Today for Full Details

The **FYRITE** Combustion-Testing **MASTER KIT**

...Helps You Build Profits and Prestige

Combustion-testing builds business in two ways. First, it boosts service profits because with instruments any service job can be done in less time and by less experienced men. Second, it brings in new equipment business by spotting fuel-wasting burners through a dramatic "fuel-saving" check-up which will convince even the most skeptical customer of the need for replacement or modernization.

Keying your sales and service to fuel conservation will work wonders for you. It will establish you as a "fuel-saving" expert and help you corner an even larger share of immediate and future sales in your community.

The MASTER KIT shown above will appeal particularly to those who want professional implements of highest quality and reliability, as well as of impressive display. This is one of many FYRITE Combustion-Testing Kits, priced from $33.30 up.

Ask your Jobber or Write for Bulletin 733.

BACHARACH Industrial Instrument Co.

7000 BENNETT STREET • • PITTSBURGH 8, PA.

8

Why Stay Behind the 8-Ball With Old Fashioned Oil Heat?

Sell Fuel Saving PENN *Packaged Heat*

Give yourself a chance at sales with *fuel-saving* PENN *Packaged Heat.* No long-winded explanations are needed to sell it. Customers can *see* the *difference.*

PENN BOILER & BURNER MFG. CORP.

Lancaster, Pa.

For SALES and SERVICE on your VIKING ROTARY PUMPS call your nearest VIKING Representative

The Viking Pump Company is represented by a nation-wide sales and service organization in key cities from coast to coast . . . from Canada to the Gulf. Is your pumping installation operation at high efficiency? Do you have a pump maintenance problem? Do you have a new pumping application? Write or call the Viking representative nearest your plant for service.

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Viking PUMP COMPANY Cedar Falls, Iowa

Smoke means wasted energy!

SENTRY DRAFT CONTROLS REDUCE HEAT LOSS . . .

- Sensitive operating action
- Completely automatic operation
- Non-corrosive brass bearings
- Easy to install . . . quickly!
- Factory adjusted for accuracy
- Durable, rugged construction
- Full range of sizes from 6" to 12"
- Fully warranted and guaranteed
- No servicing necessary
- Underwriters' listed

Made by the manufacturers of SENTRY AT-A-GLANCE tank gauges. Write for descriptive literature.

KRUEGER *Sentry* PRODUCTS

GREEN BAY • WISCONSIN

A very Merry Christmas
to our friends everywhere—
and sincere wishes for a wonderful New Year
EDDINGTON METAL SPECIALTY COMPANY
P. O. BOX K, EDDINGTON, PENNSYLVANIA

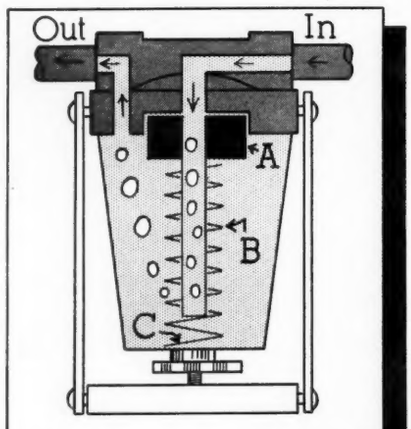
known to be performing well, and the tachometer reading is used similarly and to make certain that on the trouble job the motor is not overloaded. The close attention to motor loads and motor performance helps especially with heavily loaded motors and motors of unusual design for 25 and 50 cycle current.

* * *

Suction Line Leaks

A Bloomington, Indiana, engineer spent 15 minutes in his basement workshop, he reports, to make up an improved suction line leak tester based on the idea described in a "Service Short-Short" published in the September issue of FUELOIL & OIL HEAT.

"To avoid having to do the difficult trick of turning the glass-bowl filter upside down after it's been filled with oil,"

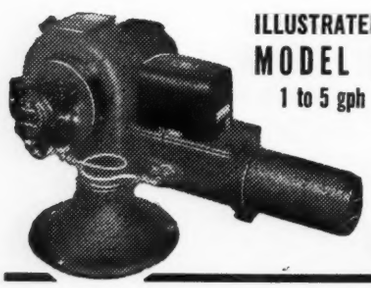


Homemade Indicator Shows Suction Line Air

he writes, "I removed the ceramic filtering elemnet from a glass-bowl filter and substituted a piece of soft cork, a little glass tube, and a spring to keep the parts in place. Carrying the gadget with me on service calls, I can check for suction line air leaks of outside tank installations just by undoing a suction line connector, quickly coupling up the tester so the suction line oil goes through it on the way to the pump, and looking in the glass bowl for air bubbles. Using this tester along with a vacuum gauge to show the normal vacuum and maximum vacuum the pump develops, within a few minutes I can settle any problems related to loss of prime, pump squeal caused by air leaks, suction line leaks, and weak pumps."

"A" in the diagram is the soft cork piece which fits oil-tight into the top of the filter. "B" is the glass tube, pressed into a hole drilled or burned in the cork. A special long spring, "C," presses upwards on "A," keeping the parts in place.

One of the *OLDEST BURNERS* ...one of the *FINEST!*


ILLUSTRATED
MODEL L
1 to 5 gph

U. S. oil burners offer much more in performance and fuel economy—for much less in proportionate cost.
One of the oldest manufacturers of oil burners, if not *the* oldest, U. S. has kept abreast or ahead of the times in burner design and mechanical engineering.
3 models are available, 1 to 5 gph, 4 to 8 gph and 7 to 16 gph . . . a range to cover almost any heating specification.

Write, wire or phone for detailed information.

UNITED STATES BURNER CORP., HARTFORD, CONN.

"Best Pipe Joint Cement I've Ever Used!"

Says a typical **PLASGON** *user*

And it's easy to see why! Plasgon is ideal for use on fuel oil line joints because it's *FLEXIBLE* . . . doesn't crack or get brittle. . . doesn't weaken because of shock, jarring. Plasgon is perfect for new piping jobs, too — prevents and stops leaks. . . eliminates service trouble. Oil, steam and other common solvents have no effect on Plasgon, the pipe joint cement that withstands considerable pressure and up to 350°F. heat.

Get a **FREE SAMPLE** See just what Plasgon can do. *Write*

Samuel Cabot, Inc.

2281 Oliver Building, Boston 9, Mass.

INCREASE HOT WATER TANK CAPACITIES from 13 to 56%

with THE *New* BABBIN Thermostatic Mixing Valve

3/4" — 2"

This BABBIN Valve brings fully dependable thermostatic hot water regulation to the small and large home field. It is adaptable for use on storage tanks, submerged tanks and tank saver units, and many other industrial and domestic applications.

- All Bronze Casting . . . "ADNIC" Corrosion-Resistant Thermostatic Unit
- Positive Hot and Cold Water Shut-off
- Temperature Range from 70° to 180° F. Only one moving part.

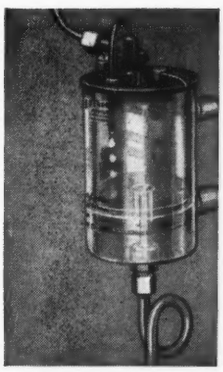
EXPANDING TYPE SOLID LIQUID FILLED PATENTS 2081726 2282152

For complete details. Write today. **DEPT. F**

Babbin N.Y.C. **THERMOSTATIC CONTROLS**

258-60 Canal St. New York

MONMOUTH HUMIDIFIERS

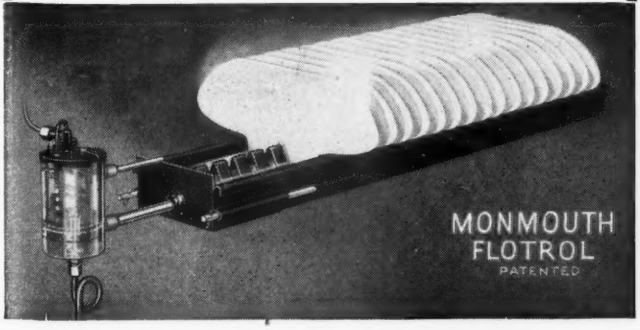


- **For healthful heating, use a good humidifier on every heating installation you make. For long dependable performance, and freedom from repairs and adjustments, make it a Monmouth FLOTROL, or a MICRO-FEED, the best engineered and built humidifiers available. Get that easy EXTRA profit in every Monmouth sale. We also make gas operated HUMIDITY CONDITIONERS for all radiator jobs.**

Bulletin and prices on request.

THE CLEVELAND HUMIDIFIER CO.

7808 Wade Park Ave., Cleveland 3, Ohio



Galongage

The Ideal Gauge for Basement Tanks

CHECK THESE OUTSTANDING FEATURES

- Time and money saver—comes fully assembled.
- Accurate readings—measures in 10-gallon spacings.
- Precision built for years of service.
- Eye appeal and easy readability.
- Listed as approved by Underwriters' Laboratories.

When making replacements and checking oil burners for greater efficiency, install *Galongage.*

When ordering, specify depth of tank and size of opening.

APPLIED MECHANICS COMPANY

167 OLIVER STREET, BOSTON 10, MASSACHUSETTS

Oilheating Trends

(*Continued from page 11*)

have trouble getting the No. 5 oil they need to take care of new customers. Asked whether or not they sell oilburners for No. 5 oil, those voting "Yes" in New England were 21% of the companies, in the Mid-Atlantic states 18% of the companies.

In the Midwest 52% of the reporting companies say that they sell some burners for No. 5 oil. This figure seems so high as to indicate that there may have been some misunderstanding of the question, some taking it to mean selling No. 5 oil, rather than burners for that product.

FUELOIL FILTERS: A special request was recently made to check the reporting group on their activity in connection with fueloil filters. Nationwide, dealers report that they install oil filters on 60% of the new installations. There is some geographic variation in this, with New England reporting the high figure of 68% and the Mid-Atlantic being low with 54%.

The dealers were then asked to what per cent of their burner service customers they supply an annual filter replacement—either a new cartridge or a throw-away type filter—and the average figure is 37% of customers. Again, there is a geographic variation, with New England high at 57% and the Mid-Atlantic area low with 22%.

WINTER SALES OUTLOOK: There has been some feeling in the industry this Fall that because the industry got a late start this year the good level of activity would be pushed forward into the later months. In other words, a number of manufacturers have believed that we would not encounter the normal seasonal slump. The dealers, however, take an opposite view. Among those reporting from all over the country 89% expect that their sales will fall off sharply to about follow a normal seasonal pattern, and then build up again in the Spring. With the dealer opinion so nearly unanimous it is quite probable that they are right.

One of the reasons expressed by some dealers is that families heating with coal, and that had considered oilheating this year, made up their minds firmly to put in one more season with the old fuel. They made this decision early in the summer, and put in a winter's coal supply. If we should assume a normal seasonal pattern in the sense of a prewar normal average, the coming months would stack up about as follows: November 8% of the full year's demand; December 4.9%; January 4.3%; February 3.6%; and March 5.3%. The actual dip will probably not be quite that deep because today new home work represents a larger portion of the total than it did before the war, and quite a lot of new homes are completed in the winter for spring selling.

◈

Fred S. Ehrman, general sales manager, Bowser, Inc., Fort Wayne, Ind., since 1944, has been elected to the new post of vice president and director of sales. Associated with Bowser since 1925, Mr. Ehrman has served successively in experimental engineering, sales engineering and divisional sales work.

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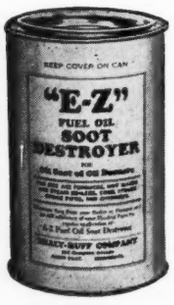
When the oil burner Servicemen answer a call it is easy many times to add furnace cleaning to the job. E-Z Fuel Oil Soot Destroyer (for fuel oil soot only) does a thorough, clean, safe job in just one application. Takes but a few minutes. Keep a 5 lb. Can on each service truck, always. Stock the 1 lb. Cans for sales to your customers. If your Distributor cannot supply you, order direct.



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Special discount to Distributors on quantity purchases, allows for extending regular discount to Dealers and Servicemen.

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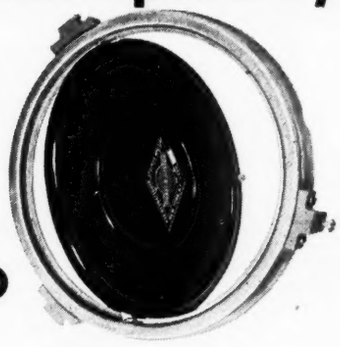

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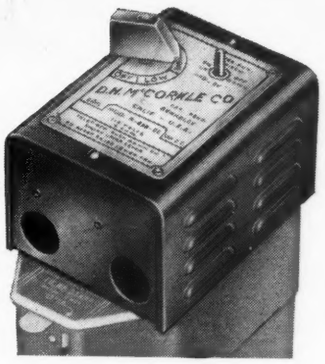

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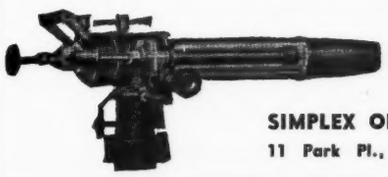

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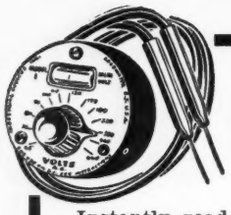

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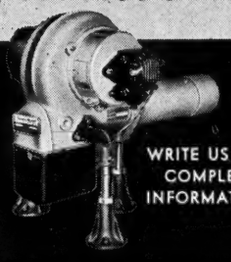

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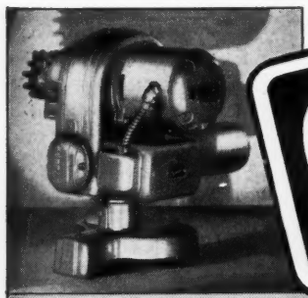
W. *Henry Tonner* has joined Auer Register Co., Cleveland 21, Ohio, as field sales representative on the company's complete line of heating registers and grilles. Mr. Tonner, with a long career in the heating industry, formerly was with the Elyria, Ohio office, Ohio Fuel & Gas Co. as sales engineer and also represented Minneapolis-Honeywell in a sales capacity. He will perform general sales contact work for Auer.

Daniel J. Shanahan rejoined Gulf Oil Corp. at Boston on October 1 in the capacity of manager of employee relations for the company's New England Division. He had been associated with Gulf for more than nine years prior to October 1941 when he joined the original OPA petroleum price control staff, serving principally in the New York region until January 1, 1946. Since then he had been manager, wholesale oil sales, White Fuel Corp., Boston.

Roy E. Smith has been elected president, Stefco Steel Co., Inc., Michigan City, Ind. He joins the company after twenty years experience in the steel fabricating industry. Stefco produces Panelox stainless steel combustion chambers as part of its line.

Charles M. Rowland has become sales manager of the recently established commercial refrigeration division, Air Conditioning Department, General Electric Co., Bloomfield, N. J.

GET DOLLARS (instead of nickels) from every installation with this QUALITY Burner. Many EXCLUSIVE FEATURES mean greater performance . . . utter dependability. Backed by co-operative factory policy. **REIF-REXOIL, Inc.** Buffalo N. Y.



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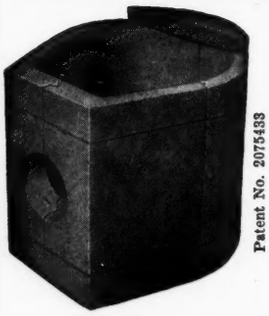

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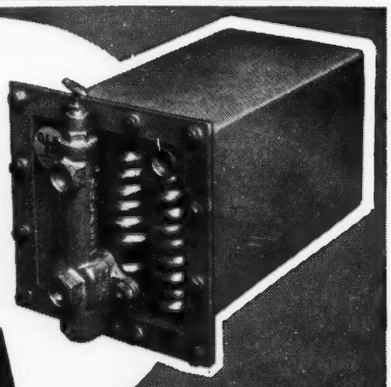

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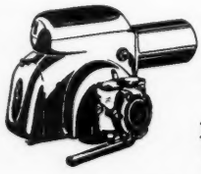

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Index to articles in 1948 issues of

fueloil & oil heat

by months and page numbers

MERCHANDISING

AUTOMATIC HEATING SUPPLIES *Henry D. Crane*..Dec. 49
DOLLARS FOR EXTRA CARE.....*A. E. Coburn*..July 55
GETTING THE LAST BTU.....*Henry D. Crane*..Feb. 55
INNOCENT ABROAD.....*B. C. Lindberg*..Jan. 102
INSULATION SAVES BURNER COSTS *Wharton Clay*..May 70
IT IS UP TO THE DEALER.....*A. E. Coburn*..Feb. 71
LP GAS INFORMATION.....*H. D. White*..Feb. 75
NEW ENGLAND OILHEATING FORUM .....July 67
NORGE-HEAT WINS PLAQUE .....Apr. 63
OILFIRED UNIT HEATERS.....*Max Seltzer*..June 54
OILHEATING WINDFALLS.....*Robert Gray*..Dec. 43
SALEM AND HORACE DAVENPORT *Robert Gray*..May 63
SALESMEN'S KITS FOR OIL PROSPECTS .....Aug. 74
SELL FARM OILHEATING.....*Robert Gray*..Nov. 51
SHOELEATHER AND DOORBELLS..*A. E. Coburn*..Sept. 67
THE MANUFACTURERS' JOB....*L. A. Schultz*..Feb. 70
WATCH WET HEAT.....*Joseph R. Murphy*..Mar. 78
WE LIKE REPLACEMENTS.....*A. E. Coburn*..May 59

FUELOIL

CONSUMERS OPINION ON FUELOIL .....May 51
FOR EXAMPLE, NORTH CAROLINA *Robert Gray*..Feb. 58
FUELOIL ON THE FARM.....*Walter Rudolph*..Aug. 68
FUELS FOR YOUR FUTURE .....Oct. 70
GREEN LIGHT.....*Robert Gray*..Oct. 51
HEATING OIL QUALITY TRENDS *Stewart H. Hulse and John O. Collins*..July 63
INTEGRATION FOR FUELOIL.....*Robert Gray*..Aug. 64
IT'S YOUR MOVE, MR. SUPPLIER *Lionel L. Jacobs*..Sept. 70
JUSTICE DEPARTMENT OK'S OIL PROGRAM.....Feb. 63
1946 FUELOIL CONSUMPTION .....Mar. 76
SOUTH CAROLINA SPRING.....*Robert Gray*..Mar. 74
TANK CLEANING WITHOUT WASTE *Talbot A. Smith*..Sept. 72
TANKS FOR SECURITY.....*A. E. Coburn*..May 59
THE REAL FUEL SITUATION.....Mar. 63
YIELD SHIFT WOULD EASE STRINGENCY.....Feb. 62

GENERAL

ASHVE ANNUAL MEETING .....Feb. 54
COMBINATION OIL-GAS BURNERS DETRIMENTAL .....Aug. 72
CONVENTION INCLUDES 16TH EXPOSITION.....Apr. 55
JOE KEYHOLE REPORTS THE SHOW.....Apr. 64
LIST OF EXHIBITORS, NATIONAL OIL HEAT EXPOSITION .....Mar. 66
NU-WAY EXCAVATION UNCOVERS OLD POTTERY .....Nov. 74
OILHEATING MATURES .....Apr. 51
PRODUCTS AT THE HEATING SHOW *J. W. Schulz*..Feb. 51
SERVICE COST STUDIES .....Aug. 59
SILVER ANNIVERSARY CONVENTION .....Mar. 65
SPACE HEATER CONSIDERATIONS..*Robert Gray*..July 57
WHEN WE WERE YOUNG..*Leod D. Becker*..Mar. 69

STATISTICAL

AUTOMATIC HEATING IN SMALLER CITIES.....Jan. 128
BANNER YEAR FOR DEALERS .....Jan. 92
CONFIDENCE MOST NEEDED....*Robert Gray*..June 51
FUELOIL MARKETING .....Jan. 98
INSTALLATION ESTIMATES, FIRST HALF .....Sept. 82
O.H.I. SURVEY OF TANK MANUFACTURERS....Aug. 73
1947 OILBURNER EXPORTS BREAK RECORD *C. Muirhead*..Apr. 72
OILHEATING BOOM SETS NEW PEAK .....Jan. 85
OILHEATING BY STATES .....Jan. 116
SERVICE FOR ECONOMY .....Jan. 96

TECHNICAL

ADJUST FOR INSTANT IGNITION .....Feb. 74
ADJUSTING FIRE SIZE.....*Rudolf Ulrich*..Apr. 67
AUTOMATIC REGISTER....*Henry A. Aronson*..Nov. 63
AVOIDING A STARTING "PUFF" .....Jan. 132
BURNER TESTING STUDIES.....*B. R. Walsh*..Oct. 55
COMBUSTION EFFICIENCY CHART .....Aug. 86
COMBUSTION OF FUELOIL..*C. H. Burkhardt*..Apr. 70
COMBUSTION TESTING INSTRUMENTS *J. W. Schulz*..May 72
CONTROLS FOR TWO FURNACES .....July 74
ENDING ASSORTED BREAKDOWNS .....Nov. 70
FIGURING HEAT LOSSES.....*J. W. Schulz*..June 62
FINDING HIDDEN WIRE DEFECTS.*J. W. Schulz*..July 60
GUN BURNERS IN SMALLEST HOMES *J. W. Schulz*..Sept. 78
HARD-TO-SEE FLAMES .....Aug. 82
HIGH PRESSURE NOZZLE RATING..*E. O. Olson*..Feb. 66
IMPROVING CONVERSION INSTALLATIONS *R. D. Dill and P. R. Achenbach*..Mar. 80
LATEST IN OILHEATING EQUIPMENT.....Apr. 59
LEAKY SUCTION LINE .....Sept. 81
PRESSURE AND VACUUM TESTS .....May 110
LOW PRESSURE BURNERS *Fred Feigenbaum and John E. Dignam*
Part I .....Nov. 55
Part II .....Dec. 51
Oddities in Servicing—I .....*J. W. Schulz*..Oct. 64
—II .....Nov. 65
—III .....Dec. 57
OILBURNER FLAMES.....*C. H. Burkhardt*..June 59
OILBURNER PULSATIONS....*C. H. Burkhardt*..Dec. 45
REFRACTORIES FOR OILHEATING *C. H. Burkhardt*..Oct. 61
SERVICING A THERMOSTAT .....Dec. 70
STARTING A NEW BURNER.....*J. W. Schulz*..Mar. 72
SUMMER-WINTER HOT WATER..*J. W. Schulz*..Jan. 105
TEACHING CONTROL SERVICE *Maurice Clayman*..Nov. 60
THE IGNITION TRANSFORMER.....*J. A. Uttal*..Oct. 58
TWO-TANK INSTALLATIONS..*Frank P. Scully*..Sept. 75
USE YOUR DRAFT GAUGE! ....*J. W. Schulz*..Aug. 61

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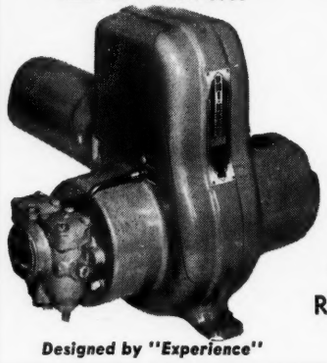

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—A—

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American Radiator & Standard Sanitary Corp. 14
Anchor Post Products, Inc. 112
Applied Mechanics Company 107
Auburn Burner Co. 90
Autocar Co., The 36
Automatic Products Company 38
Avco Mfg. Corp., The 69

—B—

Babbin, Inc. 107
Bacharach Industrial Instrument Co. 105
Bell & Gossett Company 39
Bethlehem Foundry & Machine Co., The 78
Black, Sivalls & Bryson, Inc. 30
Bogue Electric Manufacturing Co. 109
Boston Machine Works Company 101
Brodie Company, Ralph N. Inside Front Cover
Brundage Company, The 84
Bryan Steam Corporation 77
Burnham Corporation 32
Butler Mfg. Company 88

—C—

Cabot, Inc., Samuel 107
Carbondale Grate-Bar Co. 99
Century Engineering Corporation 21
Clean Sweep Co. 112
Cleveland Humidifier Co., The 107
Coastal Oil Company 87
Conco Engineering Works 29
Cuno Engineering Corp., The 89

—D—

Davis Engineering Corp. 28
Detroit Lubricator Company 59
Dole Valve Company, The 35
Dongan Electric Mfg. Co. 76
Doyle Vacuum Cleaner Co. 102
Dwyer Mfg. Co., F. W. 101

—E—

Eddington Metal Specialty Co. 106
Electric Motor Development Co. 64
Electrol Burner Mfg. Co., Inc. 41
Emerson Electric Mfg. Co. 20

—F—

Field Control Division 91
Fitzgibbons Boiler Co., Inc. Inside Back Cover
Ford Motor Company 112

—G—

General Controls Co. 103
General Electric Co. 13
General Filters, Inc. 82
General Fittings Co. 79
General Oil Burner Corp. 12
Globe Controls Co. 100
Gorton Heating Corp. 104
Granberg Corporation 86

—H—

Hago Products 111
Harvey, Inc., Sid 22
Healy-Ruff Company 108
Heat Timer Corporation 91
Henry Furnace Co. 83
Herco Oil Burner Corp. 110
Hotstream Heater Co., The 87

—I—

Independent Oil Burner Corp. 15
Industrial Devices, Inc. 110

—J—

Jefferson Electric Co. 33

—K—

Klemm Automotive Products Co. 97
Kraissl Company, The 111
Kresky Mfg. Co., Inc. 96
Krueger Sentry Products 105

—L—

Little Burner Co., H. C. 6

—M—

Mack Trucks, Inc. 63
Maid-O-Mist, Inc. 93
Marlow Pumps 73
May Oil Burner Division 24
McCorkle Co., D. H. 109
McDonnell & Miller, Inc. 25
McLarty Systems 112
Minneapolis-Honeywell Reg. Co. Back Cover
Modern Die & Machine Company 103
Monarch Mfg. Works, Inc. 34
Monogram Combustion Chamber Company 110
Mt. Hawley Mfg. Company 103

—N—

Nu-Way Corp., The 95

—O—

Ohio Electric Mfg. Co. 7
Olsen Mfg. Co., C. A. 65

—P—

Paragon Oil Burner Corp. 109
Penn Boiler & Burner Mfg. Corp. 105
Penn Electric Switch Co. 31
Perfex Corporation 42
Petroleum Heat & Power Co. 16
Preferred Utilities Mfg. Corp. 108, 114

—Q—

Quality Specialty Company, Inc. 95

—R—

Radiant Utilities Corp. 100
Radiator Specialty Company 99
Rayfield Co., C. L. 104
Refractory & Insulation Corp. 74
Reif-Rexoil, Inc. 110
Ret-Rac Corporation 114
Rudy Manufacturing Co. 109
Rutland Fire Clay Co. 98

—S—

Scully Signal Co. 9
Shell Oil Company, Inc. 37
Silent Glow Oil Burner Corp. 71
Simplex Oil Heating Corp. 109
Skuttle Mfg. Co., The 18
Smith Co., Inc., H. B. 92
Spark Stove Co., Inc. 102
Sundstrand Engineering Co. 110
Sundstrand Machine Tool Co. 3

—T—

Taco Heaters, Inc. 23
Tankit Company 80
Teesdale Co., The R. S. 109
Thatcher Furnace Co. 109
Therm Oil Burner Co. 98
Thrush & Co., H. A. 81
Timken-Silent Automatic Division 19
Triplex Heating Specialty Co., Inc. 99
Tru-Heet Company 61
Tuthill Pump Company 97

—U—

U. S. Burner Corp. 106

—V—

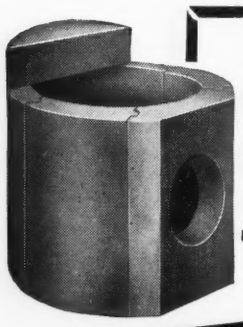
Viking Pump Company 105

—W—

Waterman-Waterbury Company 26
Watts Co., Alfred Allen 114
Watts Regulator Company 17
Webber Co., A. R. 114
Webster Electric Co. 75
White Rodgers Electric Co. 67
Williams Oil-O-Matic Division 4
Wilson & Co., Inc. 27

—Y—

Yula Water Heaters, Inc. 110



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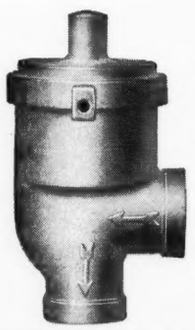

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